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PART I

Surface Water Control In New Jersey

Drainage, Flood Control and
Related Policies in an Urban State

STEPHEN A. DECTER

BUREAU OF GOVERNMENT RESEARCH
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VI

PART I

SURFACE WATER CONTROL IN NEW JERSEY

Drainage, Flood Control and Related
Policies in an Urban State

PART I

1. Framework for Water Policy
2. New Jersey Water Control Laws
3. Administration of Water Resources

PART II

- Findings and Recommendations
1. Organizational Structure
 2. Substantive Programs

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RUTGERS • THE STATE UNIVERSITY

to the

NEW JERSEY JOINT COMMITTEE ON DRAINAGE

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PREFACE

The management of water resources is a difficult subject to divide into independent categories. The origins of this study may be traced to concern over the possibility that pools of stagnant water had facilitated the breeding of encephalitis-carrying mosquitos. But the consideration of legal means for eliminating such stagnant water almost inevitably led to consideration of many other features of surface water control. The resulting study encompasses an analysis both of the competing objectives of water resource management and of the administrative and legal framework within which they may be accommodated.

Part I of the report contains three chapters describing and analyzing the current situation in water control legislation and administration. Part II, printed separately, contains the final two chapters, which include the recommendations made as a part of the study.

The study was made possible by grants from the New Jersey Departments of Conservation and Economic Development and of Health, and from the New Jersey Water Resources Research Institute.

Ernest C. Reock, Jr., Director
Bureau of Government Research

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Chapter I

FRAMEWORK FOR A WATER POLICY

A.

GENESIS OF THE REPORT

This study is the culmination of a long series of events. In the narrowest sense, it is a response to a public health crisis-- the outbreaks of encephalitis in the 1950's and 1960's, directly related to the existence of stagnant and often polluted surface water providing breeding places for mosquitoes.

This crisis gave rise to at least two kinds of questions. The first questions which arose involved the functions to be performed to alleviate the problem. The immediate response was the spraying of actual and potential breeding places, often indiscriminately. The need for effective public action, not only to control such conditions but to prevent them from happening, soon was recognized.

A second series of questions involved the authority of private persons and public agencies to deal with these problems and how they were organized to do so. The governmental problem encompasses a number of elements: (a) the lack of full knowledge concerning which agencies have authority to act; (b) the inadequacy of that authority; (c) the unwillingness of certain agencies to exercise the authority that they do have; and (d) the lack of some rational framework for the coordination of the many agencies involved or which could be involved in the undertaking of pertinent programs.

In October 1959, the Governor's Committee on Disease Control was appointed to consider these questions. The Committee determined that there was a need to study the whole problem of drainage and flood control in relation to public health and the control of mosquito-borne disease. It assigned this task to a subcommittee, the Joint Committee on Drainage, which was to formulate proposals based on its findings. In 1963 the Joint Committee requested the Bureau of Government Research to undertake a study of the problems of drainage. Pursuant to a planning grant from

the Federal Government under Section 701 of the Housing Act of 1954, a full-scale effort began in February 1964.

B.

THE FORMULATION OF BASIC POLICY GOALS

1. Allocation of Resources

Governmental agencies allocate resources and values. Water control policies involve the allocation of at least two natural resources -- land and water. In addition, all public policies involve: human resources; their protection and facilitation; and economic resources, involving the public and private economic sectors. Resources are scarce and valuable generally. Thus, a task involved in public policy is to develop criteria and priorities as to their allocation.

This task as it pertains to the control of water is made difficult because it must be undertaken in a complex and dynamic environment. First, there are varying natural and climatic conditions. There are variations in the absorptive capacities of soils and in the terrain of land in various parts of the State. There are variations in weather conditions -- from time to time, normal dry weather, storms of different intensities, flood flows of different heights and velocities, or drought may prevail. Second, interacting with these conditions and often accelerating their impact are developmental patterns. In New Jersey rapid urbanization often results in situations of too much or too little water: too much when full use of land area is inhibited by excessive water levels or flows; too little when water storage areas are depleted or polluted, thus being unable to meet increasing water demands.

Crisis situations arise as a result of this interaction shifting short-term priorities and temporarily transforming conceptions of self-interest and the "public interest." Government agencies respond in refractory ways often to incompatible pressures. Generally, with regard to water control, government in New Jersey is decentralized and underfinanced, with little rationality as to the distribution of functions among various governmental levels and to the allocation of economic burdens among various segments of the population.

2. A Statement of Basic Policy Goals

Public policy is formulated to achieve specified goals and values. For the purposes of this report, policy goals have been considered on a number of levels. First, there are basic goals which apply generally to water management in an urban state. Second, there are instrumental goals connected with various aspects of water policy which are designed to achieve the basic goals. Furthermore, goals may be of different types: they may pertain to human environment; they may pertain to the developmental patterns of the State; they may pertain to the structure and processes of government.

Often these goals are pursued in varying degrees simultaneously. They are not exclusive nor necessarily incompatible. However, if any are emphasized disproportionately they may conflict with the achievement of one or more of the others. To indicate their complementarity and to anticipate conflicts, it will be helpful first to inventory the basic goals. In this way the place of water control programs can be seen in the broad context within which they operate.

Environmental Goals:

1. The protection of human life, safety, health, comfort and convenience.

Developmental Goals:

2. The facilitation of the full and effective use of land areas.
 - a. Industrial-commercial uses.
 - b. Residential uses.
 - c. Agricultural uses.
 - d. Recreational uses.
3. The facilitation of the full and effective use of water resources.
 - a. Consumptive or withdrawal uses: for residential; industrial-commercial; and agricultural purposes.
 - b. Flow uses: disposal of wastes; assimilation of polluting substances; and generation of hydro-electric power.
 - c. On-site uses: facilitation of fish and wildlife habitats; navigation, water-based recreation; regeneration of ground waters.

Governmental Goals

4. The provision of effective and efficient government.
 - a. The achievement of selected policy goals.
 - b. The allocation of scarce resources.

5. The equitable allocation of the costs of governmental programs.
 - a. Allocation reasonably related to the benefits derived from the undertaking of governmental programs.
 - b. Allocation reasonably related to the contributions made to problems to be alleviated.
 - c. Allocation reasonably related to financial capacities.
 - d. Allocation reasonably related to program responsibilities.

6. The maintenance of democratic values.
 - a. Responsiveness to pertinent constituencies and clientele.
 - b. Responsibility and accountability in decision-making to those affected by decisions.

C.

ACHIEVEMENT OF ENVIRONMENTAL AND DEVELOPMENTAL GOALS

It will be helpful to explore the relationship between various water management programs and the achievement of basic goals. In this regard, it was found that programs involving the control and disposal of surface and ground water were intimately connected with those intended to develop, conserve and protect water resources. To illustrate this relationship, instrumental goals associated with functional water programs were formulated. In Table 1 the relationship of these goals is indicated.

1. Potential Conflicts Among Functional Programs.

By examining Table 1-1, it is apparent that there is complementarity among goals and the programs associated with them. At the same time, there are potential conflicts which must be

Table 1-1

THE RELATIONSHIP OF INSTRUMENTAL AND BASIC ENVIRONMENTAL AND DEVELOPMENTAL GOALS

Instrumental Goal I: To dispose and control ground and surface water.

Instrumental Goal II: To conserve and develop water resources in sufficient quantities and of adequate quality for timely and convenient use.

Basic Goal Number 1: To protect human life, safety, health and convenience

1. to protect public and private structures and facilities
2. to prevent the creation of unsanitary conditions
3. to control and prevent conditions conducive to the breeding of mosquitoes and other insects

1. for potable water supplies
2. for the disposal of sewage and industrial wastes
3. for the dilution of water pollutants
4. for fire protection
5. for industrial and commercial processing
6. for suitable fish and game habitats
7. for the protection of water-based recreation

Basic Goal Number 2: To facilitate full and effective use of land areas

1. to protect residential land uses
2. to protect industrial-commercial land uses
3. to protect roads facilitating movement of traffic
4. to protect agricultural land uses (erosion and water table control)
5. to protect recreational uses of land

1. for residential land uses
2. for industrial land uses
3. for agricultural land uses
4. for suitable fish and game habitats
5. for water-based recreation

Basic Goal Number 3: To facilitate full and effective use of water areas

1. for the facilitations of navigation
2. for the continuous generation of hydro-electric power
3. for the preservation of fish habitats
4. for the facilitation and protection of water-based recreation

resolved if the basic goals are to be achieved. It will be helpful to examine these potential conflicts in detail.

First, there are potential conflicts among water control programs. A major difficulty involves the relationship of upstream and downstream water control programs. Water control programs such as the enlargement, realignment, and construction of natural and substitute drainageways, and the construction of facilities to collect and dispose of storm surface water, may result in increased velocities and volumes of streamflows overburdening and even damaging downstream facilities and property. Conversely, water control programs such as the detention or impoundment of waters to regulate streamflows may have an adverse impact on upstream water control. Potential conflicts among water control programs have been charted in Table 1-2.

Second, there are potential conflicts between what is done to control water and programs pertaining to water use. What is done to dispose of water safely will affect choices as to the quantity of water available for various uses and the level of its quality. Once water is disposed of and it flows to the sea or evaporates, it can no longer be put to use within the State. In turn, what is done to detain, impound, or divert water for its various uses will affect choices as to its safe disposal.

For example, programs to reclaim and improve streams, lowering water tables and draining wetland areas, may adversely affect agricultural land uses and may eliminate suitable fish and game habitats; techniques used to reclaim and improve streams may conflict according to which agencies undertake such programs. In addition, the impoundment and detention of water by various means both for water control and water use purposes may be incompatible with mosquito control programs and programs pertaining to the maintenance of suitable fish and game habitats, the facilitation of agriculture, navigation, recreation, and pollution control. Some of these conflicts are charted in Table 1-3.

Third, there are potential conflicts or increasing competition among various water uses. For example, constant withdrawal uses, such as those for waste-carrying, may conflict with so-called peaking uses, such as hydro-electric power production. Seasonal uses of water may conflict. Waste-carrying uses of water cause quality deterioration of water.²

While the above programs need not conflict, but may complement each other, it is clear that these programs must be considered together and the consequences of pursuing certain goals and the utilization of certain techniques should be recognized and anticipated. To the extent that no attempt is made to reconcile potentially conflicting goals and techniques, the effectiveness of programs undertaken by public agencies will be jeopardized and inefficiency in the allocation of scarce resources will result.

Table 1-2

Potential Conflicts Among Goals and Programs of Water Control

DISPOSAL OF WATER

DETENTION OF WATER

1. Facilitation of ordinary dry weather channel flows

Objectives:

- Protection of all land uses from water damage (U)
- Mosquito and other insect control
- Protection of public health
- Water table controls

Techniques:

- Stream reclamation and maintenance
- Ditching
- Underdrainage
- Regulation of landfills, grading, soil erosion

2. Collection and disposal of storm surface water

Objectives:

- Protection of all land uses from water damage (U)
- Protection of roads (U)

Techniques:

- Construction and regulation of storm sewers
- Reclamation, improvement of stream channels
- Maintenance of storm water drainageways
- Control of landfills, grading, soil erosion

3. Facilitation and Containment of flood channel flows

Objectives:

- Protection of all land uses from flood damage (U)

Techniques:

- Reclamation, improvement and construction of channels
- Regulation of channel encroachments
- Public acquisition of floodways
- Floodway and flood plain zoning
- Control of landfill, soil erosion, grading

1. Detention of channel flows and regulation of releases

Objectives:

- Protection of all land uses from water damage (D)
- Protection of roads, bridges and culverts (D)
- Limit flows to capacity of existing drainage facilities
- Reduction of costs of channel improvements and other works
- Minimize potential liability of upstream developers

Techniques:

- Construction, improvement and maintenance of dams and other detention facilities
- Acquisition, construction of surface water storage areas
- Public acquisition of drainageways, flood plain areas
- Flood plain zoning
- Regulation of withdrawals and diversions of water

2. Detention of surface water runoff

Objectives:

- Protection of all land uses from water damage (D)
- Protection of roads (D)
- Limit runoff to the capacity of existing facilities
- Reduction of costs of channel improvement and other works
- Minimize potential liability of upstream developers

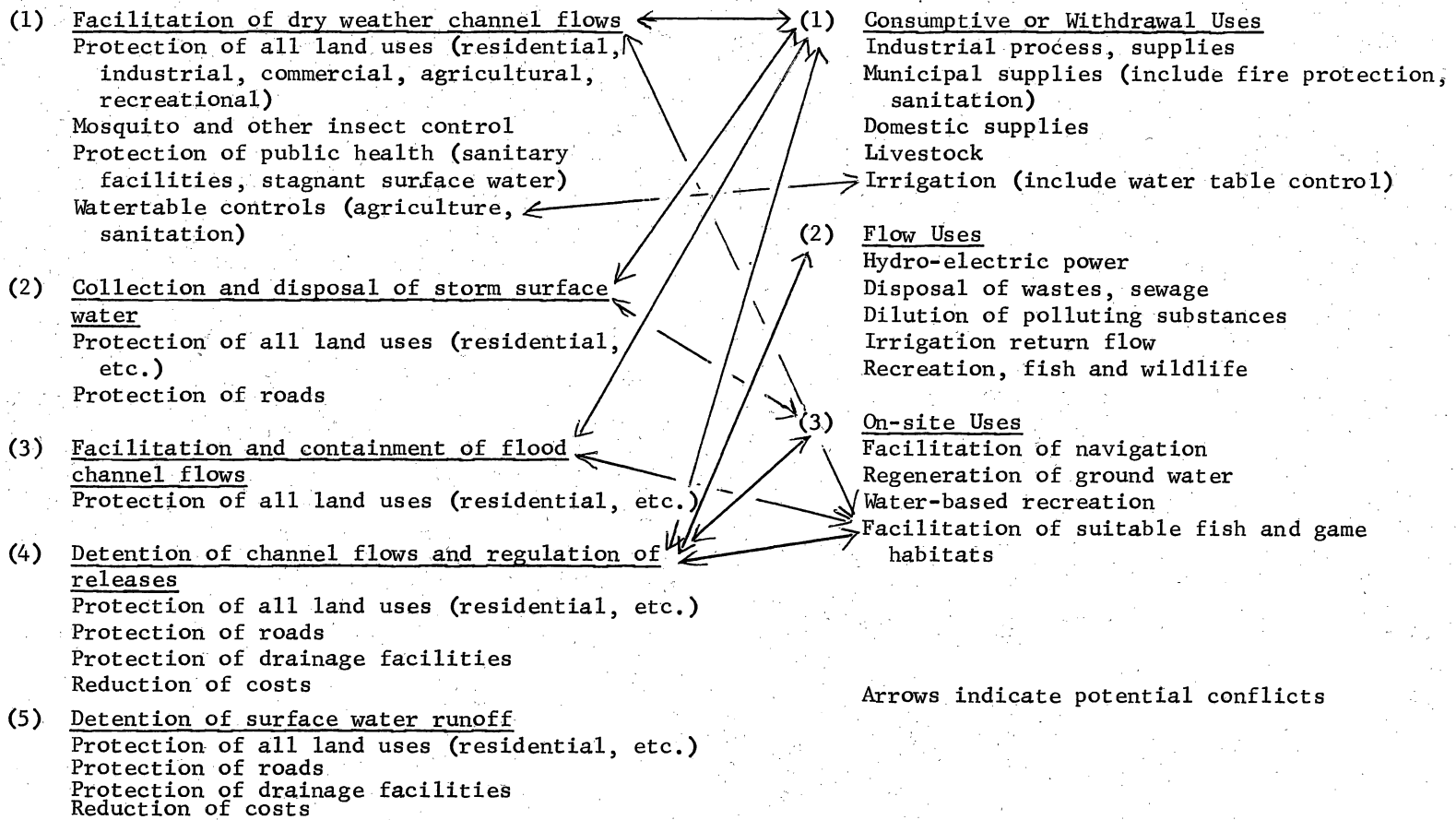
Techniques:

- Catch basins, pits, etc.
- Public acquisition of drainageways, flood plains, open areas
- Land cover, contour, grading controls
- Zoning
- Other land-use controls

Arrows indicate potential conflicts. U means upstream. D means downstream.

Table 1-3

Potential Conflicts Between Water Control Programs and Water Uses



Arrows indicate potential conflicts

2. Impediment to Goal Achievement: The Unintended Consequences of Urbanization.

The rapid and relatively unregulated urbanization of the State is another source of difficulty in the achievement of basic goals. Urbanization is a process involving many private and public decisions. These decisions are deliberate, but because those making them often have limited perspectives, many of their consequences are unintended. While urbanization involves many political, social, and economic correlates, its main effect for the purpose of this report is the increase in high intensity land uses and the resultant decrease in low intensity uses and open areas.

a. Adverse Impact on Water Control.

Practices associated with urbanization have wrought extensive changes in the natural environment: by the introduction of impermeable surfaces; by the development and filling-in of open areas and wetlands; by arbitrary changes in the grading of lands; by the obstruction, alteration, and elimination of natural drainageways and the construction of substitute drains and sewers; by the occupation of flood plains and the removal of natural land cover.

All of these developments have had an impact on effective and safe disposal of water: (a) They have decreased the capacity of drainageways to safely conduct and contain surface water flows; (b) They have increased the volume and velocities of surface water runoff causing damage to downstream facilities and properties; (c) They have resulted in the elimination of many detention areas, thereby increasing burdens on existing disposal facilities; (d) They have resulted in the placement of facilities in areas prone to conditions of excess water. Consequently, the decisions connected with urbanization, many of which were made with the intention of achieving the basic goals cited above, have actually hindered their achievement.

First, such decisions have jeopardized human life, safety, health, comfort, and convenience by creating conditions endangering structures and facilities, inhibiting the safe passage of traffic along roads, and by creating conditions which are unsanitary or conducive to the breeding of mosquitoes and other insects.

Second, decisions to develop land areas fully have actually resulted in situations restricting the full and effective use of these and other land areas. The use of land areas for residential, industrial-commercial, recreational, and transport purposes have been adversely affected by flooding and exposure to stagnant surface water. Agricultural uses of lands may be adversely affected by increased water table levels impeding the infiltration capacity of soils and by soil erosion.

Third, decisions made with the intention of minimizing costs may result actually in increased economic burdens for private persons and public agencies. Private persons may be burdened with the costs of dealing with water damage, the construction of protective works, and the assumption of liability in the disposal of surface water from their properties. Public agencies are excessively burdened by the increasing costs of undertaking the construction and improvement of protective works, of improving and repairing roads, road drainage facilities, bridges and culverts, of constructing artificial and substitute drains, of piping around developments which block natural drainage facilities, and of reclaiming navigable and non-navigable streams. In fact, in an attempt to increase ratables by the maximum development of land areas, governments may actually increase, on the whole, their public financial burdens both by the increased need for protective programs and by resulting decline in property values along flood-prone areas.

b. Impact on Water Use.

The pressures of urbanization have decreased the ready availability of water adequate in quantity and of sufficient quality to fulfill its many functions.

In terms of land use, unregulated high-intensity development has resulted in: (a) the decreasing availability of open areas for surface water storage; (b) a decrease of infiltration areas for the regeneration of gravitational waters and ground water storage areas; (c) the elimination of wetland areas, diminishing the recreational resources of the State; and (d) the growing disparity between the location of existing water resources and the location of the greatest demand for these resources.

In terms of water uses, urban development has resulted in increased demands for existing and new water supplies. At the same time, pollution of water has decreased the availability of existing supplies for various purposes. Consequently, there has been a decrease in the availability of existing water resources to meet increasing and competing demands: There are increasing demands to meet growing withdrawal and consumptive water needs for potable water supplies, for the facilitation of residential, commercial and industrial land uses, and for recreational uses; there are increasing demands to meet growing needs for minimum or sustained water flows, for the disposal of increasing amounts of sewage and wastes, for the assimilation of polluting substances in streams and for the generation of hydro-electric power; there are continuing demands for water in sufficient quantities and of adequate quality to facilitate agricultural land uses, to facilitate navigation, to maintain suitable fish and game habitats, and to otherwise protect water-based recreational areas.

Again, the achievement of the basic goals has been jeopardized. First, human life, safety, and health are endangered because of insufficient quantities of water of deteriorating quality, affecting potable water supplies, industrial and agricultural consumption uses, and the availability of water for fire protection. Second, the full and effective use of land areas is threatened by insufficient quantities of water of deteriorating quality for residential, industrial and commercial, agricultural, and recreational purposes. Third, the full and effective use of water areas is jeopardized by inadequate quantities of water of deteriorating quality, inhibiting navigation, endangering fish habitats, increasing problems for the generation of hydro-electric power and inhibiting the use of water-based recreational areas. Fourth, excessive economic costs are a consequence of urbanization. Private fish industries and water-based recreational commercial establishments may be damaged by lack of water and by pollution. Public and private costs increase if efforts must be made to rehabilitate surface water areas or to raise the quality of available water resources. Governments on all levels within the State may be adversely affected if insufficient quantities of water of deteriorating quality impair residential and industrial-commercial development and reduce property values. Public costs of acquiring surface water storage areas become more expensive as open lands are withdrawn for development. Distribution and transportation costs are excessive if water storage areas are long distances from the greatest incidence of demand.

D.

ACHIEVEMENT OF GOVERNMENTAL GOALS

The basic governmental problem is that although the agencies surveyed in this report are in many ways competent within their own spheres, their perspectives often are limited to specific problems and to specific programs, each financed from different sources and each involving particular clientele groups and groups with narrow interests. This is particularly true of single or limited purpose agencies, but it is also true of public agencies with general governing powers which are pre-occupied with fundamental problems of providing basic services and finding or developing sources of financial support while minimizing their governmental costs and burdens.

1. Fragmented Decision-Making

Generally, with reference to water resources management, the decision-making structure of the State is decentralized. In part, this condition is due to the large number of agencies on

all governmental levels undertaking pertinent programs. Some of them are general-purpose agencies, which have limited geographical jurisdictions; others are limited or single-purpose agencies outside the regular governmental framework. In part, decisional fragmentation is due to the existence of numerous clientele groups associated with one or more agencies supporting specific programs and differentially responded to by particular governmental agencies. In connection with these groups, one study has indicated that: (a) they tend to form around specific functional areas; (b) collectively, they may exercise considerable pressure toward inducing or inhibiting government action on a broad front; and (c) individually, they seek to have governmental responsibility (for water resources development) parceled out to separate single-purpose agencies in which they might have confidence.³ In part, decisional fragmentation has been due to the financial structure of the State, characterized by the lack of broad-based revenues on the State level. On the one hand, more aid is being channeled through Federal agencies. Yet, because funds available from Federal and State sources are not adequate to meet many local needs, local governments must tap local sources already overburdened. Finally, decentralized decision-making is due partially to a strong tradition of Home Rule in New Jersey.

Generally, there has been little coordination among the many agencies involved in water management programs. State governmental agencies are subject to conflicting pressures and differential support and controls. They have few "carrots" to offer local jurisdictions and few "sticks" to coordinate related programs undertaken by agencies on all levels. Local governments similarly are susceptible to conflicting pressures and respond differently to intensely expressed local demands. They attempt to provide increasing urban services in the most efficient possible manner. Consequently, they avoid undertaking costly programs or assuming risks. At the same time, they attempt to increase their tax bases by fostering maximum development of land areas. As a result, local decision-making units often are isolated from broad perspectives.

2. Impediments to the Achievement of Goals

Due to the decentralized structure, and lack of coordination, water management decisions of public agencies in New Jersey often are neither effective nor efficient. In terms of effectiveness, they may jeopardize human life, safety, comfort and convenience, and the full and effective use of land and water areas. In terms of efficiency, long-range costs may be increased directly by the need to undertake remedial programs, by the replacement of inadequate facilities constructed without proper consideration of future developments or the requirements of entire drainage areas. Acting in isolation, governmental units lose the advantages of economies of scale. Indirect costs can be measured by the devaluation of property along flood prone areas, by the lack of capacity

to facilitate residential, commercial and industrial growth, by problems of agricultural and by the loss of recreational resources.

In terms of democratic governmental goals, it is important that pertinent constituencies and clientele groups be represented and that public agencies making decisions pertaining to or affecting the control and use of water be held accountable for their actions. Yet, when the consequences of private and public decisions go beyond the jurisdictions of public agencies making or regulating them, functional constituencies, which do not conform to existing boundaries, are inadequately represented. In most cases, these constituencies can not be represented by municipal agencies. To a greater extent they might be represented on the county, the watershed, the State, or interstate level, depending on the type and scope of the problem.

E.

THE SEARCH FOR THE PUBLIC INTEREST

How then, in this complicated and changing situation, can the public interest be served best? There are many theoretical and practical difficulties involved in ascertaining whether a "public interest" actually exists; that is, one which can be distinguished from private, segmental interests. These problems have not been resolved here. Admittedly, this report contains value judgements in the analysis of substantive and organizational needs. For the purposes of this report, it is assumed that the search for public interests is a process involving at least three steps: (a) recognizing goals, interests, and values of persons, groups, and public agencies having some connection with the control and use of water; (b) recognizing the relationship of these segmental goals to each other; understanding the consequences of decisions implementing them, and attempting to use these findings to ascertain broader goals and interests of public policy; and (c) devising legal means and organizational mechanisms to insure that segmental goals and interests neither dominate public decision-making nor are neglected wholly.

To an extent the first two steps of this process has been attempted in this chapter. Existing laws and organizational mechanisms will be examined in the next two chapters in order that proposals for the third and last step can be formulated.

Chapter I

FOOTNOTES

¹For designation of consumptive, flow, and on-site uses see Edward Ackerman and George Lof, Technology in American Water Development. John Hopkins Press. Baltimore, 1959. ch. 3.

²These competing uses have been charted in Ibid. p. 94.

³Roscoe Martin et al., River Basin Administration and the Delaware. Syracuse University Press. Syracuse, 1960. p. 33.

Chapter II

LAWS OF WATER CONTROL

A.

ELEMENTS OF WATER CONTROL

Having indicated in the last chapter that water control policies must be viewed in the broad context of water resources management, this chapter focuses primarily more narrowly on the laws of water control. The inter-relationship of all water management programs cited in the last chapter suggests the need for all-embracing coordinating organizational mechanisms. However, in connection with analysis of laws applicable to substantive or legal problems and in the formulation of substantive recommendations, this report will focus on water control.

Early in the deliberations of the Joint Drainage Committee four drainage categories were formulated in order to isolate the constituent elements of the problems of water control. These categories were: (a) dry weather drainage; (b) storm surface water drainage; (c) flood channel flow; and (d) flood plain regulation.¹ A discussion of water control must include these categories, but their limitations are recognized. Functionally, they are not clearly distinct categories since there is much inter-relationship among techniques and programs associated with them. The following inventory will indicate this inter-relationship.

1. The disposal and control of surface and ground water in ordinary (dry weather) weather conditions.

Functions to be performed under ordinary weather conditions involve the removal of water which becomes trapped on land surfaces by natural and artificial barriers, by neglect or failure to maintain natural or artificial channels, or because of high water tables.

Techniques associated with these functions include the construction of artificial or mechanical devices, and the reclamation or construction of natural or substitute drainageways. They are applicable to "upstream" problems to protect and facilitate high and low intensity land uses as well as to control and prevent conditions detrimental to public health. (For potential conflicts among these programs, see Chapter I.)

2. The Collection, disposal, and control of surface storm water.

The disposal of storm surface water involves the protection of all land developments, particularly urban high intensity uses and the protection of roads. Problems are encountered both upstream and downstream. The construction, maintenance, and improvement of natural or substitute drainageways, drains, and sewers must be undertaken to facilitate storm runoff to protect upstream developments. Also, facilities must be constructed and regulations promulgated to control or detain storm water runoff so as not to overburden existing drainageways or to cause damage to downstream facilities or property.

Artificial sewers and drains are separately constructed to facilitate the disposal of storm water and sewage and wastes. Natural drainageways function to facilitate the disposal of storm water runoff as well as sewage and wastes. Thus, storm drainage programs must encompass the maintenance of natural and substitute drainageways, including stream channels with defined banks and beds and those swales, depressions, and ravines without defined banks, which function primarily to facilitate storm water flows.

3. The facilitation, containment, and control of flood channel flows; the regulation of flood plain occupance.

Flood prevention and flood control programs involve both the control and facilitation of flood flows and the regulation of flood plain occupance. Functions connected therewith include: (a) the construction of protective works; (b) the guidance of new developments to avoid the creation of new problems; and (c) the prevention of existing problems from becoming worse.²

Flood channel flows may be controlled in a number of ways: by the construction, maintenance, and improvement of natural and substitute flood channels; by the construction of facilities or the control of land and water uses to impound, detain, and contain flood flows; by the regulation of channel encroachments; and by regulating the occupance of flood plains.

Regulatory functions are two-fold: first, laws may regulate encroachments of flood channels and adjacent portions of flood plains to control flow-restricting development and to detain runoff; second, laws may regulate the occupance of flood plains as a means of protecting lives and high intensity land uses.

Thus, it can be seen that there are distinct problems involved with each of the above categories, but there are many facilities and techniques which apply to all of them. In the following description of the laws of water control and in the subsequent formulation of recommendations, a balance has been attempted so as to indicate distinct problem areas and solutions where they exist, and to combine them when extensive overlap so dictates.

B.

INVENTORY OF WATER CONTROL FUNCTIONS

A number of functions connected with water control have been inventoried to aid in measuring the comprehensiveness of existing laws and programs and to identify gaps. At least the following kinds of authorizations are required for a comprehensive water control program.

1. Authority to formulate and promulgate plans and standards:
 - a. to guide present developments and undertakings;
 - b. to anticipate the consequences of public and private decisions, programs, and activities; and
 - c. to anticipate future needs and development.

2. Authority to collect and develop data:
 - a. to facilitate the undertaking of operations and projects;
 - b. to facilitate the formulation and enforcement of regulations;
 - c. to facilitate the evaluation of present laws, programs, and activities; and
 - d. to formulate future programs.

3. Authority to construct, maintain, improve, and operate natural and artificial facilities:

- a. to undertake all recognized functions of water control;
- b. to facilitate the timely and adequate exercise thereof; and
- c. to insure their application to all areas of the State and within areas coterminous with the scope of any given problem.

4. Authority to regulate the activities of public agencies and private persons according to standards developed:

- a. To control land and water use practices affecting the safe disposal of water;
- b. to control the construction and maintenance of water control facilities;
- c. to coordinate the exercise of regulatory authority pertaining to or affecting water control;
- d. to assign responsibilities for the exercise of water control programs;
- e. to facilitate the timely and adequate exercise thereof; and
- f. to insure application to all areas of the State and within areas coterminous with the scope of any given problem.

5. Authority to finance public programs and activities:

- a. to insure the availability of adequate funds for timely application to recognized problems;
- b. to equitably allocate burdens among segments of the population; and
- c. to allocate costs among agencies on all levels bearing some relationship to fiscal capacities and functional responsibilities.

C.
THE CONSTITUTIONAL-COMMON-LAW
FRAMEWORK OF WATER CONTROL

1. Common-Law Problems

A number of problems have been raised in connection with the disposition of cases pertaining to water control.

a. Rights and Responsibilities in Connection with Watercourses

In connection with water control, a fundamental question is: To what extent are private persons and public agencies responsible for the maintenance of watercourses? An examination of the case law reveals two major points. First, there are few responsibilities imposed upon private persons or public agencies to maintain watercourses. Second, there are penalties associated with the undertaking of the reclamation or improvement of watercourses which may inhibit the taking of any action.

Watercourse defined. In general, a watercourse has been defined as a stream of water that flows along a definite channel, with a bed and banks, for a sufficient time to give it a substantial existence.³

Private property owners. The basic water rights law for the private use of surface water in New Jersey is the Riparian Doctrine. Accordingly, the courts have ruled that riparian owners are entitled to the use and enjoyment of streams without obstruction.⁴ At the same time, such owners can not stop stream-flows to the prejudice of others.⁵ Thus, in some instances, a private owner would be held responsible for the deliberate obstruction of a stream on his property or for the removal of a tree falling from his property across his portion of the stream. At the same time, he may not be held responsible for the removal of an obstruction across his portion of a stream emanating from outside his property or for the removal of soil, silt, or debris emanating from his property which blocks a stream.

Public Agencies. Government agencies are not obligated to care for, maintain, or keep within their beds, natural streams or watercourses, unless such legal responsibility is created by the Legislature.⁶ However, once they undertake to improve a watercourse so as to change it in any way from its natural state, liability may ensue under a variety of rules.⁷ Specifically in New Jersey, a government agency improving a stream may be liable for active wrong doing, if it knew or should have known it would so increase the velocity of the flow of a watercourse as to cause downstream damage.⁸ Furthermore, once a public agency acquires a drainage right-of-way in connection with the undertaking of

drainage or flood control work, either by acquiring the fee title or a permanent easement, it is likely to be committed to perpetual maintenance of that right-of-way.⁹

b. Rights and Responsibilities in Connection with the Disposal of Surface Water

Another question is: What are the rights and responsibilities of possessors of land, public or private, in collecting and disposing of surface water? An examination of the case law reveals two major points. First, there is a legal vacuum in connection with the construction and/or maintenance of surface water drainage facilities. Second, common-law rulings pertaining to potential liabilities incurred in the disposal of surface water have resulted in legal uncertainty.

Surface water defined. In general, surface waters are those which fall on land or arise from springs and diffuse themselves over the surface of the ground following no defined course or channel.¹⁰

Maintenance of surface water drainageways. No rulings were found imposing the responsibility of maintaining surface water drainageways.

Common Enemy Rule. Prior to 1955, the New Jersey courts adhered to the "common enemy" rule, which was that a possessor of land had an unlimited legal privilege to dispose of surface water therefrom, regardless of the harm to other property owners which might result.¹¹

Reasonable Use Rule. In 1956 the courts abandoned the "common enemy" rule and adopted the "reasonable use" rule. In Armstrong v. Francis Corporation,¹² the court ruled that each possessor of land is legally privileged to alter the flow of surface waters on his property only insofar as resulting harmful interference with downstream properties is not unreasonable. The issue of reasonableness is one of fact, to be determined in each case upon the consideration of all relevant circumstances including: the amount of harm caused; the foreseeability of the harm which results; the purpose or motive with which the possessor acts; and all other relevant matters.¹³ In view of the scope of the language in the Armstrong opinion, and the decisions in subsequent cases, it would appear that the "reasonable use" rule applies to all cases involving the disposal of surface water and it can not be confined to its facts.¹⁴

Some correlary questions should be raised at this point. Will county and municipal governments, having assumed the maintenance and operation of a storm drainage system, be held liable for damage resulting from the disposal of surface water through such a system at a later date? Are public agencies or private

persons, which provide storm drainage facilities, responsible for installing pipes of adequate size to accommodate the disposal water from upland areas of a water shed upon calculations of its final development? What if a major body of water which could facilitate the disposal of surface water is not located near a particular development; who should bear the major financial burdens for the consequences of disposing of surface water, the developers or those who may be affected by such development?

The limits of the liability incurred by public agencies and private persons in developing land can be defined only on a case-by-case basis. Presently, the reasonable use rule has shifted the financial burdens of urban surface water drainage from those downstream owners affected by increased flows, to those who develop lands for high intensity uses. Problems are confronted in apportioning costs to persons based on their contribution to problems engendered by increased flows.

2. Scope of Governmental Authority

A final question posed in this section concerns the scope of governmental authority. Since most drainage outlets and water-courses traverse private property, to undertake work or to enforce regulations thereon, some governmental action is required.

a. Constitutional Protection of Private Property

There are limits to what public agencies can do on private property. Private property owners can not be deprived of the full and beneficial use of their lands without just compensation and/or without due process of the law.¹⁵ Thus, in order for public agencies to take action involving private property it must do so according to constitutionally permitted laws and according to permissible legal procedures.

b. Governmental Powers: Regulation of Private Property

There are a number of ways that governments can undertake work on or regulate the use of private property.

Acquisition; Eminent Domain Power. Public agencies may choose to acquire easements or the fee title to lands in connection with water control functions, with the consent of affected property owners or by condemnation. The State is authorized to acquire private property by condemnation and may delegate the exercise of such power to political subdivisions of the State and to administrative agencies: provided that property is taken for a public use and not for strictly private purposes without the consent of the owner even when compensation is rendered;¹⁶ provided further that owners of land so condemned receive just compensation;¹⁷ provided further that the exercise of condemnation

power accords with standards of due process.¹⁸ Thus, in order for there to be a permissible exercise of the power of eminent domain, there must be a statute delegating such authority for a specified public use or uses, and it must be in accord with permitted procedures.

Police Power; Zoning Power. Another means of undertaking functions on or regulating the use of private property is by the proper use of the police power. Whereas, the power of eminent domain can be exercised to take private property because it is useful to the public, the police power may be exercised to regulate the use of private property because its uncontrolled use would be harmful to the public interest.¹⁹ The police power resides in the State Legislature, but portions thereof may be delegated to administrative bodies and to political subdivisions of the State provided such delegation is accompanied by clear legislative standards.²⁰ The State courts have ruled that the exercise of such power, even though it may disturb the enjoyment of individual rights, does not appropriate property for public use (thereby requiring the just compensation of owners of property taken), but simply regulates its use for the preservation of public health, morals, comfort, safety, and the economic interests of the State.²¹ The limitation in the exercise of the police power is that there must be a substantial relationship between a legislative regulation and the legitimate purposes of police power.²² However, all that is necessary is some rational connection between the means employed and the ends sought.

The imposition of reasonable use restrictions upon private property in connection with zoning laws has been held to be a proper exercise of the police power of the State.²³ Thus, the zoning power is a permissible means of regulating the use of private property in connection with water control. However, insofar as the delegation of the zoning power is concerned, the State Constitution has imposed significant limitations in Article 4, Section 6, paragraph 2, wherein it states:

The Legislature may enact general laws under which municipalities, other than counties may adopt zoning ordinances. [Emphasis provided.]

c. Government Jurisdiction Over Public Lands and Waters

Having discussed the scope of governmental authority in connection with private property, the extent of public lands and waters are to be determined.

State Jurisdiction. The State has title to certain lands and waters. In a number of decisions the New Jersey courts have ruled that lands below the high water mark, constituting the shores and submerged lands of the navigable waters of the State and the arms of the sea, where the tide ebbs and flows, are part

of the sovereignty and belong to the State and not to the riparian owners.²⁴ In connection with these areas, the State Legislature has the power to regulate, abridge, or vacate public rights, except in such field as is reserved to the United States by the Federal Constitution.

Alienation of State Title. The State may alienate its title to navigable and tidal waters in a number of ways:²⁵ It may convey the fee or lesser interest in tidal lands; it may convey a grant in fee simple of riparian lands; it may lease such lands; it may grant a license; or it may convey an easement. Questions exist involving the extent to which State title has been alienated and the degree of public control which has been vacated.²⁶

Federal vs. State Jurisdiction. Federal jurisdiction over inter-state waters is based upon the "commerce clause" of the U.S. Constitution.²⁷ However, the jurisdiction of the federal government is limited. Conflicting decisions of the U.S. Supreme Court in connection with this paramountcy of rights in these waters,²⁸ led to the enactment of the federal "Submerged Land Act" in 1953 which confirmed and established the title of the States to lands beneath the navigable waters within each State and the power of States to provide for the use and control of such lands. Federal jurisdiction was confined to the natural resources of the seabed of the continental shelf seaward of the State boundaries.²⁹

D.

STATUTORY LAWS OF WATER CONTROLS: AUTHORITY TO UNDERTAKE OPERATIONS

Having assessed the constitutional and common-law framework, the next task is to indicate the extent to which statutes have filled some of the legal gaps cited in the previous section and have implemented some of the powers granted.

In this connection, it is important to keep in mind the allocation of those functions inventoried above, to agencies on the various governmental levels.³⁰ This section will assay the authority to undertake water control operations. Succeeding sections will assay regulatory powers, the authority to formulate plans and standards, and the authority to collect and develop data. In addition, the actual implementation of existing authority has been noted and taken into consideration in the formulation of recommendations.

1. The Disposal and Control of Ground and Surface Water During Ordinary Weather Conditions.

Property owners, acting alone, can not adequately alleviate drainage problems which are partially caused elsewhere and the solution to which involves other property owners, unless consent of those owners is obtained. Collective private efforts can

be thwarted by a single property owner who for various reasons refuses to cooperate. Thus, public action is necessitated.

a. Authority of Municipalities.

Municipalities have limited power and flexibility to undertake and to finance ordinary drainage operations.

Municipalities have no general authority to undertake various kinds of operations connected with drainage and flood control, which can be financed from general local revenues; but they may undertake land and stream reclamation as local improvements. (N.J.S.A. 40:56-1, 40:56-52),* which when undertaken individually are financed by means of special assessments. Only insofar as more than one such improvement are combined as a general improvement or when repairs and maintenance of local improvements are undertaken can they be financed from general tax revenues. (Ibid.)

Several other provisions do authorize municipal governing bodies to maintain and improve public waterways and navigable streams which respectively can be financed by general taxes, the issuing of bonds and assessments. However, these provisions have limited application to ordinary drainage problems. (See N.J.S.A. 40:69-3, 40:14-1,5,8)

b. Authority of Districts, Commissions, Joint Meetings

Few drainage problems can be alleviated by persons or municipalities acting alone, without the cooperation of other persons or municipal jurisdictions. Legislation enabling the creation of special agencies provides some means of overcoming such problems. Generally, such statutes have been found to be inadequate in providing continuous relief of drainage problems in an urban environment.

Contracts, Joint Meetings. By means of a variety of laws municipalities may contract with other municipalities to perform jointly any service which they are authorized to perform singly. (See N.J.S.A. 40:48B-1 et seq., N.J.S.A. 40:56-17 to 40:56-19.) In addition, municipalities and counties may cooperate pursuant to contractual arrangements. (See N.J.S.A. 40:48-18 to 40:48-23, 40:23-14 to 40:23-18, 40:23-6.26 to 40:23-6.29.) These provisions can provide area-wide relief from some drainage problems, subject to the willingness of the units involved to cooperate in a sustained fashion. Generally, these provisions do not overcome the inadequacies of the authority of each unit to act individually.

*For the convenience of the reader, references to specific statutory provisions are cited in the text, in parentheses. Involved citations and interpretations of statutory law are cited in the footnotes at the end of the chapter.

Drainage Districts. Legislation passed around the turn of the century pertaining to the formation of drainage districts was found to be inadequate for present needs. (See, N.J.S.A. 13:10-1 et seq., 40:57-1 et seq.) In the first place, it does not solve the problem of the uncooperative property owner or political jurisdiction blocking effective action. Second, only municipalities bordering on tidewater can petition to form intramunicipal or inter-municipal drainage districts. (See, N.J.S.A. 40:57-1.) Third, districts can finance their operations only by means of inflexible special assessments.

In 1956 the Joint Legislative Commission of Drainage and Stream Clearance assayed these difficulties and recommended an updating of present legislation.³¹ These recommendations will be considered subsequently in Part II of this report.

County Drainage Commissions. Legislation has permitted the formulation of county commissions to undertake drainage programs to alleviate conditions found to be detrimental to public health (N.J.S.A. 40:30-7). However, such commissions can pursue only limited objectives and they are not easily created. There is little evidence of the exercise of this authority.

Soil Conservation Districts. These districts can and do perform useful drainage programs. However, in a number of respects they were found to be incapable of sustaining comprehensive drainage programs throughout the State. First, they have limited technical staffs and equipment. Second, they have limited financial flexibility and resources. Third, many of their programs are tied to grant programs of the U.S. Department of Agriculture, although such programs extend to the alleviation of urban and rural residential drainage problems. At the same time, these agencies provide valuable sources of skills and resources and must be considered in formulating an overall drainage policy. (The authority of these districts is referred to throughout this report.)

Problems of Financing by Special Assessments. Up to this point those dry-weather drainage programs described which can be undertaken by municipalities and by drainage districts, largely, are financed by means of special assessments. Some difficulties have been found to be associated with this means of financing drainage programs. First, there are problems in determining benefits upon which such assessments are based. This may lead to inequitable allocation of burdens and/or result in delay occasioned by costly litigation brought by those disputing the imposition of levees.³² Second, they are an inflexible means of financing drainage work in that they do not provide a reliable source of funds for timely application to recognized problems. In upholding drainage district legislation, the New Jersey courts have gone no further than to permit assessments for work already done, refusing to permit similar impositions for the estimated cost of work to be performed.³³

c. Authority of Counties.

County agencies are granted a variety of powers giving them some flexibility in undertaking and financing drainage operations. Furthermore, their geographical jurisdiction enables them to apply these powers to those drainage areas which are entirely or mostly within single counties. At the same time, counties vary considerably as to their financial resources and the exercise of their powers.

General Drainage Authority. County boards of freeholders are granted general authority to construct drainage facilities, to reclaim lands, ditches, drains and watercourses, and to control streamflows, which can be financed from general revenues. (N.J.S.A. 40:30-18)

In addition, a variety of provisions enable them to reclaim and improve watercourses, to be financed respectively from general revenues, the sale of bonds, or the imposition of direct assessments (N.J.S.A. 40:29-2,3, 40:14-1,3,4,5,7). These latter provisions, which have counterparts on the municipal level, apply largely to navigable waters and public waterways and are inapplicable to many ordinary drainage problems.

Authority to Protect County Roads. In connection with the protection of county roads generally (N.J.S.A. 27:16-1), and roads near tidewater specifically (N.J.S.A. 27:16-14), county governing bodies may undertake the construction and reclamation of streams and drains.

Mosquito Control Laws. In connection with mosquito extermination, boards of freeholders and county mosquito extermination commissions are granted various drainage powers.

Freeholders are authorized to undertake programs to eliminate mosquitoes, to purchase equipment, and to employ county mosquito extermination commissions, all of which can be financed, within limits, by the issuance of bonds (N.J.S.A. 26:9-27,30).

County mosquito extermination commissions, generally, are authorized to perform all acts which in their opinion may be necessary to eliminate mosquito breeding areas or which may tend to do so (N.J.S.A. 26:9-21). Mosquito commissions may tap a number of sources of public funds and may apply them to recognized problems: within prescribed limits; county freeholders must include in their annual tax levies, an amount to cover programs of county commissions which are approved by the Director of the Agricultural Experiment Station (N.J.S.A. 26:9-23,24); in addition, the State Mosquito Extermination Commission in the Department of Conservation and Economic Development may recommend to the State Legislature the appropriation of funds for mosquito control programs (N.J.S.A. 26:9-12.6).

Undoubtedly, there are advantages in utilizing laws pertaining to mosquito control. Mosquito extermination agencies are well equipped to perform valuable drainage services. First, these commissions have had fifty years of experience in undertaking shallow drainage work. They have expertise, some equipment, and alternate sources of funds. Second, the language of applicable laws can be broadly interpreted to permit wide latitude in undertaking drainage work. (The implementation of existing authority has, in some cases, been extended beyond the alleviation of mosquito problems.) Third, when there are alternate means of abating mosquito breeding, commissions may not be committed to perpetual maintenance of streams. Fourth, not only does there exist a variety of sources of public funds in undertaking of mosquito extermination work, such funds may be expended in the year in which they are appropriated.

At the same time, there are limitations in applying mosquito extermination laws to continuing drainage problems. First, mosquito laws have limited objectives--to abate situations conducive to mosquito breeding. Thus, in order to extend their jurisdiction beyond this objective to situations where there are no bona fide mosquito problems, or where drainage work is only partially justified by the existence of mosquito problems, mosquito agencies are forced to operate without being able to point to specific enabling authority. Questions arise as to what portion of a total drainage problem must be a bona fide mosquito problem in order to fall within the jurisdiction of mosquito laws. At best, this is an uncertain basis upon which to build a comprehensive drainage program. Second, even if mosquito laws are broadly construed, there are inadequate public funds available to undertake a comprehensive and continuing drainage program in each county. In addition, there is inequality among mosquito commissions as to the resources which they command, and the scope of the programs which they undertake. Serious problems may arise in those counties with the least developed mosquito control programs and the least resources. Existing laws are inflexible in allocating funds to those areas where the greatest needs arise. Finally, county mosquito commissions are equipped by training to undertake only shallow drainage work. Other, more extensive work must be undertaken in a more comprehensive drainage program.

County Authority Evaluated. In summary, a number of problems have been found to exist. First, while a number of agencies are granted wide powers to perform operations which can be flexibly financed, there is unevenness among counties in their financial resources and in the exercise of their powers. Generally, counties lack adequate financial resources and coordinated direction of policies. Second, a disproportionate share of funds is allocated to the protection of county roads and to the alleviation of mosquito problems. There is need for central budgeting of scarce resources so that public funds may be allocated to areas where the greatest needs arise. Third, there are

inadequate provisions for coordinating the exercise of existing powers. Agencies operate in situations in which there is no comprehensive drainage policy.³⁴ Fourth, the jurisdiction of county agencies stops at county lines. While many drainage problems can be alleviated within single counties, authority is needed to effect coordination among counties when drainage problems transcend county boundaries and when inter-county cooperation is blocked.

d. Authority of State Agencies

The most general finding is that there are few provisions authorizing State agencies either to undertake ordinary drainage work or to extend technical or financial aid to county and local governments.

The principal water resources agencies in the Department of Conservation and Economic Development are granted supervisory authority over drainage (N.J.S.A. 58:1-9) and jurisdiction over navigable streams (N.J.S.A. 12:6-8). However, they undertake few operations applicable to the alleviation of ordinary drainage problems.

The major sources of funds and controls are associated with mosquito control programs and programs pertaining to the protection of roads. Public funds for the drainage aspects of mosquito control may be made available on the State level pursuant to recommendations made by the State Mosquito Extermination Commission in the Department of Conservation and Economic Development to the Legislature (N.J.S.A. 26:9-12.6). In connection with the protection of State roads and State-aid roads, the State Highway Department has access to funds to maintain State highways and streams and drains on adjacent rights-of-way (N.J.S.A. 27:7-11, 41) and to supervise the maintenance of State-aid roads. (N.J.S.A. 27:13-1 et seq., 27:14-1 et seq.) These funds, however, have limited application.

In summary, there are great deficiencies in the authority of State agencies to undertake programs and in funds available for such programs. The few programs authorized, touch only a part of continuing urban drainage problems.

e. Authority of Federal Agencies.

A few federal programs with primarily flood control objectives are applicable to the alleviation of some drainage problems. Thus, the authorization of the Army Corps of Engineers to undertake "flood control activities" may be applied to major drainage improvements if approved by Congress. (33 U.S.C.A. 701a-1). In addition, the Corps undertakes a long-range program of clearing navigable streams on a continuing basis (33 U.S.C.A. 701g). Similarly, the U.S. Department of Agriculture in undertaking or

aiding the undertaking of "works of improvement" is authorized to grant cost-sharing aid on a 50-50 basis for the drainage aspects of flood control projects (16 U.S.C.A. 1001, 1003).

Furthermore, a few programs exist to aid rural and farm residents in undertaking drainage work. The Farmers Home Administration is authorized to lend farmers and other rural residents funds to drain farmland (16 U.S.C.A. 1006a). Also the Soil Conservation Service engages in programs rendering technical and financial assistance in undertaking flood control and drainage work.

In summation, these programs were not designed to provide much aid in alleviating ordinary drainage problems and have had a minimal impact in the State. They will be discussed at greater length in connection with flood control.

2. The Collection and Disposal of Storm Surface Water.

Another set of problems is associated with the collection and disposal of storm surface water. At least two functions are involved: one is the construction, improvement, and maintenance of artificial drains and sewers; the other is the maintenance and improvement of a system of natural and artificial drainageways, which facilitate the removal of storm water runoff. Laws pertaining to these functions are divided into two categories: (a) the protection of all land uses; and (b) the protection of roads.

a. Protection of All Land Uses

Municipal and County Governing Bodies. Significant authority for the construction, maintenance, and operation of artificial storm drainage systems has been granted to municipal governing bodies. However, there are difficulties associated with these provisions. First authorized municipal facilities are not required to meet standards imposed within entire drainage areas (N.J.S.A. 40:63-7,18,41 to 64, 40:56-1,52,53). Second, authority to finance programs from local sources is inflexible and restrictive (For assessments, N.J.S.A. 40:86-1 et seq., 40:56-1 et seq. for bonds, N.J.S.A. 40-63-1 et seq.).

It has been indicated that both municipal and county governing bodies are authorized to maintain and improve streams for the facilitation of storm water as well as ordinary flows.³⁵ However, a number of problems are associated with such authority. First, municipalities are not authorized to reclaim and improve streams as a community benefit to be paid for from general taxation (except when local improvements are combined as a general improvement. N.J.S.A. 40:56-1). Second, a number of provisions authorizing the reclamation and improvement of streams are inapplicable to small non-navigable streams. Third, all provisions are inapplicable to the maintenance of those drainageways with no

defined banks and intermittent flows which function primarily to facilitate storm water runoff.

Sewerage Districts and Authorities. To overcome the debt limits imposed upon municipal governing bodies in the construction of artificial sewerage facilities, and to meet the need for inter-jurisdictional coordination, a number of enabling laws have been enacted to permit the formation of special sewerage agencies. The principal difficulties associated with legislation authorizing such agencies are their limited purposes and their inflexible financing.

In most cases, special sewerage agencies are granted powers only to construct, maintain, and operate sanitary sewerage and sewerage treatment facilities. (Municipal Sewerage districts, N.J.S.A. 40:63-32 et seq. Joint Meetings, N.J.S.A. 40:63-68 et seq. County and municipal sewerage authorities, N.J.S.A. 40:14A-1 et seq. County sewerage authorities, N.J.S.A. 40:30A-1 et seq.) They are not granted a wide range of powers which may be applied to related water control problems. Only a single enabling statute was found to apply specifically to the construction of storm drainage facilities (See N.J.S.A. 58:12-7 to 9. Also note that the "Consolidated Municipal Service Act" is applicable. See N.J.S.A. 40:48B-1 et seq.).

The principal financing tools permitted to these districts and authorities--the sale of bonds and the imposition of assessments--are inflexible and inadequate as an exclusive source of local revenues because of a disproportionate commitment to bondholders, because excessive reliance on bond financing may result in marked increases in interest rates generally,³⁶ and because they result in disproportionate financial burdens on certain segments of the population. Sound budgeting, involving the weighing of the relative merits of competing demands on limited resources in any given area, is jeopardized by the existence of overlapping general and single purpose governments.

State and Federal Aids and Controls. There are few laws authorizing State agencies to undertake operations pertaining to the collection and disposal of storm surface water. State agencies, largely, are confined to the administration of federal aid programs; in turn these programs, largely, are limited to water pollution control and the construction of sanitary facilities. Consequently, there are few and wholly inadequate funds available at either the State or federal levels to aid regional, county, or municipal agencies in the construction of storm drainage systems.

The principal water resources agency on the State level, the Division of Water Policy and Supply, has some authority to regulate drainage in the State (pursuant to N.J.S.A. 58:1-9), but has no specific operational authority pertaining to storm drainage and has no funds earmarked to aid such programs.

Only the Division of State and Regional Planning in administering funds for planning advances for public works pursuant to

Section 702 of the Federal Housing Act of 1954 can provide some aid for the construction of storm sewerage facilities. However, there are few federal or State controls over the use of these funds by recipients.³⁷

b. Protection of Roads.

Applicable authority has been granted to counties and to the State Highway Department in connection with the protection of roads.

Counties. Boards of freeholders are authorized to protect county roads by means of drains on roads and adjacent lands (N.J.S.A. 27:16-1,13,14,24). They are granted considerable flexibility in financing such undertakings from general revenues or supplemental bond issues (N.J.S.A. 27:16-19).

These provisions could be construed to authorize the maintenance of streams adjacent to such roads which, when blocked, jeopardize road safety, provided counties acquire downstream rights-of-way³⁸ (See also N.J.S.A. 27:16-13,14,42,48).

State Highway Department. The Department has substantial authority to protect State and State-aid roads, and to finance the work entailed therein. It is authorized to take charge of all work on State Highways and to maintain and improve them (N.J.S.A. 27:7-1,11). It is authorized to aid counties and municipalities in the construction and improvement of roads and to approve plans and specifications of all work pertaining thereto (N.J.S.A. 27:7-1, 27:9-1, 27:10-1, 27:13-1). To undertake these activities, the Department may draw from a number of financial sources.³⁹

Ostensibly, the Department is authorized to go on to land adjacent to State highways in order to maintain drains and streams which function to facilitate runoff from such highways, without such work being considered a taking for public use (N.J.S.A. 27:7-41). However, this law was passed to deal with a specific situation a number of years ago; it has not been exercised, and an analysis of cases pertaining to similar previous statutes indicates that if tested in the courts, it would not withstand constitutional objections.⁴⁰ Thus, it appears that the Department would be required to acquire rights-of-way to undertake such work on adjacent private property, in the same manner as counties.

c. Evaluation of Laws Pertaining to Storm Drainage.

In summary, a number of findings have emerged pertaining to the construction, maintenance and operation of facilities to collect and dispose of storm water. First, there are numerous provisions permitting the construction of storm drainage facilities, largely by municipal governing bodies, but in no instance

are they required to conform to standards devised for entire drainage areas. Second, no provision explicitly authorizes the maintenance or improvement of drainageways, natural and substitute, which function primarily to facilitate the passage of storm water runoff. Third, enabling legislation pertaining to sewerage districts and authorities is inadequate and largely is inapplicable to the undertaking of storm drainage projects. Fourth, authority to finance projects from local sources is inflexible and generally inadequate, and there is a dearth of State and Federal funds available to aid local agencies.

3. The Facilitation, Containment, and Control of Flood Channel Flows.

There are at least two types of functions associated with flood control. One involves the construction, maintenance, and improvement of flood channels and artificial structures so as to facilitate and contain the safe passage of flood flows. The other involves the detention or impoundment of surface water so as to control the heights and velocities of flood flows. Existing law has been evaluated with respect to these functions.

a. Authority of Municipalities.

It has been indicated that no general law authorizes municipal governing bodies to undertake drainage and flood control operations which can be financed from general local revenues. Governing bodies are authorized to maintain and improve streams as local improvements (N.J.S.A. 40:56-1). They are granted restricted authority to undertake the improvement of watercourses, navigable streams, and public waterways which can be financed by special assessments, the issuance of bonds, or general taxation (N.J.S.A. 40:69-1 et seq., 40:14-1 et seq., 58:16A-7). With these exceptions, however, municipalities are not authorized to maintain and improve flood channels as a public benefit to be financed from general taxes.

b. Authority of Counties

County boards of freeholders are granted general drainage and flood control authority which may be financed from general revenues (N.J.S.A. 40:30-18). Counties may construct, maintain, and improve streams and provide for such work in their budgets (Ibid., N.J.S.A. 40:30-20,21). Pursuant to a variety of statutes, they may reclaim and improve watercourses, navigable streams, and public waterways which can be financed by a number of means (N.J.S.A. 40:29-1 et seq., 40:14-1 et seq.). It has been noted that they are authorized to enter streams adjacent to county roads and perform work necessary for their protection (N.J.S.A. 27:16-1, 13,14).

Furthermore, counties are authorized, generally, to construct dams, to undertake other operations to control the flow of surplus and surface waters, and to provide for the same in their budgets (N.J.S.A. 40:30-18). Counties having populations between 200,000 and 400,000 may expend funds to control the flow of water in all brooks and streams within their jurisdictions (N.J.S.A. 40:29-7).

At the same time, it was found that counties are limited in their financial resources to undertake flood control projects.

c. Interjurisdictional, Special Agencies

Generally, it was found that statutory provisions enabling the undertaking of flood control projects within entire major and secondary drainage basins, were inadequate.

Joint Flood Commissions; Consolidated Municipal Services. There are provisions enabling municipalities to form joint municipal flood commissions (N.J.S.A. 40:69-5 to 10). In addition, municipalities are authorized to exercise jointly, any powers which they may exercise individually (N.J.S.A. 40:48B-1 et seq.). However, in neither case are standards imposed as to the territorial or functional scope of such commissions, their formation, the extent of their powers; and their finances depend upon the whims of individual municipalities, and at best, they are limited to the authority of each municipality.

Soil Conservation Districts. These districts, organized in every county, do provide a basis for flood control activities on a broad scale. Their authority is applicable to the alleviation of many flood problems (N.J.S.A. 4:24-1 et seq.). It should be noted that as of October 1966, districts were participating in 18 flood-control projects in the State. At the same time, it has been noted that these districts are limited in their finances, their powers, their staffs, and their willingness to exercise some of the powers they do possess.⁴¹

Delaware River Basin Commission. Only the Commission is granted a sufficient range of powers to undertake a truly comprehensive flood control program within an entire drainage basin in the State (N.J.S.A. 32:11D-19,21,34,38,101). Alone, it can not provide a complete flood control program. It is somewhat removed from State and local control. It is subject to some limits in financing projects (N.J.S.A. 32:11D-19,20,64,68). In addition, it has as a matter of policy, limited the exercise of some of its powers.⁴²

d. Authority of State Agencies

There are few authorizations permitting State agencies to undertake flood control operations and few funds for them to aid political subdivisions to do so.

The Division of Water Policy and Supply, is granted jurisdiction over flood control (N.J.S.A. 58:1-11), but has no operational powers pertaining thereto, other than limited functions in extending technical aid. The Department of Conservation and Economic Development is authorized to participate in Federal flood control projects and has been granted powers and money to do so; but this has not provided the basis of a continuing flood control program (N.J.S.A. 58:16A-1 et seq.).

The only provisions found to authorize State agencies to undertake the maintenance and improvement of flood channels, pertain to the improvement of navigable waters as a part of the inland waterways system (N.J.S.A. 12:6-9) and to the protection of State roads (N.J.S.A. 27:7-1 et seq.). Both of these programs are inapplicable to the many smaller streams where the bulk of flood problems occur.

e. Federal Programs

It is on the federal level that large amounts of money are available to assist agencies within the State. Yet, there are limitations in the applicability of these programs to flood problems in New Jersey.

The U.S. Army Corps of Engineers. The Corps undertakes extensive flood control programs. Subject to the approval of Congress, it is authorized to direct and supervise "flood control activities" on the navigable waters of the United States (33 U.S.C.A. 701a-1, 701b-2,3). On a continuing basis it is authorized: to undertake flood emergency operations (33 U.S.C.A. 701n); to engage in small flood control projects of less than one million dollars (33 U.S.C.A. 701s); and to undertake stream clearance, snagging and improvement programs on a limited scale (33 U.S.C.A. 701q). To finance its continuing program the Corps may receive funds from Federal, State and local sources (33 U.S.C.A. 701h,n, q,s,t).

Soil Conservation Service. The Service, located in the Department of Agriculture, undertakes flood control programs pursuant to the Watershed and Flood Prevention Act (P.L. 566). It is authorized, upon application, to assist "local organizations" in preparing and carrying out plans for "works of improvement" (16 U.S.C.A. 1003). The Service pays 100 per cent of the Federal share of projects, and pursuant to related programs, the Farmers Home Administration and the Agricultural Stabilization and Conservation Service in the Department of Agriculture are authorized to

make loans or advances to local organizations to finance the local share of the costs of carrying out works of improvement and other projects (16 U.S.C.A. 1006a).

Limits of Federal Programs. There are limitations in the application of federal funds to the problems of New Jersey. There are few flood control programs undertaken by the Corps in comparison with navigation programs. In addition, the State does not fare well in comparison to other States.⁴³ It should be noted that as of January 1, 1963, flood control programs undertaken in New Jersey by the Corps of Engineers amounted to merely \$652,201. As of 1964, only eight projects had been completed and only 20 applications were considered active, pursuant to the P.L. 566 program in New Jersey.⁴⁴

There may be several reasons for the dearth of programs undertaken in New Jersey. First, federal projects are limited to those which can be justified by a favorable cost-benefit ratio (33 U.S.C.A. 701 et seq., 16 U.S.C.A. 1003). While progress has been made in liberalizing calculations of benefits received, the undertaking of many flood control projects can not be so justified. Second, local interests participating in these programs must undertake responsibilities which involve costs, which include maintaining completed projects (33 U.S.C.A. 701c, 16 U.S.C.A. 1004), acquiring rights-of-way (Ibid.), and the assumption of other local costs pursuant to P.L. 566 (16 U.S.C.A. 1004).

In addition, there are other limitations in the jurisdiction of the federal agencies in pursuing these programs. The programs of the Corps of Engineers are limited to the navigable waters of the United States and their tributaries (33 U.S.C.A. 701a). A "work of improvement" undertaken pursuant to P.L. 566 is limited to watersheds not in excess of 250,000 acres and can not include any single structure which provides more than 5,000 acre feet of floodwater detention capacity and more than 25,000 acre feet of total capacity, unless it has been approved by the House of Representatives (16 U.S.C.A. 1002).

4. Acquisition of Lands and Waters.

Vitally linked with the authority to undertake water control projects, is the power to acquire lands and waters by condemnation and other means, for drainage, flood control, and conservation purposes. Adequate acquisition power: can enable public agencies to perform work on private property for water control purposes; permits reservation of drainageways and flood plains for public purposes; can decrease the need for the construction of costly engineering works; could be used to alleviate downstream liability problems resulting from the disposal of surface waters;⁴⁵ and could serve to minimize flood damage.

Three major findings emerge from an examination of acquisition laws. First, while there is authority on every level to acquire property in connection with the performance of specific functions, no general purpose agency on any governmental level is granted authority to acquire property in connection with the undertaking of all or most water control functions. Gaps were found in the existing laws pertaining to the acquisition of lands and waters either because the areal jurisdiction of agencies granted acquisition powers is too limited to deal effectively with problems which arise or because either drainage, flood control, or conservation were not specified among the "public uses" legally justifying acquisition. Second, no systematic acquisition programs have been undertaken. Third, there has been a reluctance on the part of public agencies to exercise authority they do possess when the cooperation of affected property owners is not forthcoming. Unless affected property owners consent to the undertaking of water control work, public action is required to acquire rights-of-way. When, as often occurs, difficulties are encountered in obtaining the required consent, agencies are deterred in undertaking work because of the lack of public funds and because of the legal risks involved,⁴⁶ or they are delayed by time-consuming condemnation proceedings.

a. Acquisition Authority.

Municipalities. Municipal governing bodies are authorized amply, pursuant to a number of statutes, to acquire lands and water by all means, including condemnation for a number of specific uses which individually include drainage, flood control, and sewerage (Local and General Improvements, N.J.S.A. 40:56-7,8,9. Sewers, drains, disposal plants, N.J.S.A. 40:63-1. Public lands and waters, N.J.S.A. 40:60-2. Waterfront improvements, N.J.S.A. 40:68-1. Waters, watercourses, N.J.S.A. 40:69-4.1, 4.2, 4.3, 4.7, 4.9. Water supply, N.J.S.A. 40:62-68). There is no general provision enabling acquisition for all water control and conservation purposes.

Counties. County agencies are authorized to acquire property by all means for drainage and flood control purposes generally and for the protection of roads (Drainage and acquisition of lands, N.J.S.A. 40:30-19. County parks, N.J.S.A. 40:37-95.14. County roads, N.J.S.A. 27:16-42,43. Beachfronts and waterways, N.J.S.A. 40:29-8).

Special Agencies. Special agencies with varying areas of jurisdiction are authorized to acquire property to perform specific functions (Delaware River Basin Commission, N.J.S.A. 32:11D-36, 87,100. Soil Conservation Districts, N.J.S.A. 4:24-22k). Deficiencies are found either in the jurisdictional or functional scope of such agencies in exercising such powers.

State Agencies. In connection with federal flood control programs, the protection of roads, and the facilitation of navigation, some State agencies have been authorized to acquire property for specific public uses (N.J.S.A. 58:16A-9; 27:7-22,23; 12:6-8,9). There is no general provision enabling an agency or agencies to acquire property by all means, including condemnation for all water control or conservation purposes.

b. Acquisition Programs Undertaken

It was found that few comprehensive acquisition programs are being undertaken in the State, that funds available for such purposes are not adequate, and that little useful data were being developed applicable to systematic acquisition.

Municipalities. Alone, municipalities have a limited role to play in the undertaking of systematic acquisition programs. They are limited in size. They are susceptible to pressures for minimizing expenditures and increasing ratables by encouraging the maximum development of all land areas within their borders. Often, they lack technical data and requisite skills.

Counties. Counties could play a significant role in the undertaking of systematic acquisition programs. Single counties encompass entire drainage areas. They collect and develop useful data. They have considerable acquisition authority. However, problems exist in acquiring rights-of-way to alleviate inter-county problems. Furthermore, greater political support behind county programs, more adequate data, and greater funds are needed for counties to undertake comprehensive acquisition programs.

Special Agencies. Most special agencies surveyed may acquire property by all means to accomplish their specific purposes. However, only the Delaware River Basin Commission was found to be authorized to acquire full or partial interests in lands for a full range of water control and conservation purposes.⁴⁷ Such powers could be used as a model for other agencies in the State.

There is no evidence that any agency individually or any agencies collectively are undertaking systematic and comprehensive acquisition programs on a drainage basin or regional basis, on the scale required.

State Agencies. It is on the State level where systematic acquisition programs can be most effectively conceived, authorized, and aided. State agencies could command the resources and skills and have the jurisdictional scope to undertake or aid in undertaking comprehensive acquisition programs. Yet, while some acquisition programs are being undertaken, it is apparent that such programs are not adequate for comprehensive water control and conservation purposes.

In connection with flood control and navigable streams, the Department of Conservation and Economic Development is authorized to acquire a full or partial interest in property (N.J.S.A. 58:16A-9,13; 12:3-64). In connection with the Green Acres Program, the Department is authorized to acquire lands outright (N.J.S.A. 13:8A-6), to assist local governments in acquiring lands and waters (N.J.S.A. 13:8A-12), and to acquire conservation easements.⁴⁸ The U.S. Housing and Home Finance Agency (now part of the Department of Housing and Urban Development), pursuant to the Housing Act of 1961, provides assistance to local units for the acquisition and preservation of open space lands in and around urban areas. In addition, pursuant to the Federal Wildlife and Fish Restoration programs (16 U.S.C.A. 669 et seq., 16 U.S.C.A. 777 et seq.), lands and streams may be acquired by the State (N.J.S.A. 13:1A-33,35; 13:1B-63,65; 23:12-1,2). In summary, there is some authority and some funds available for acquisition purposes on the State level, but there is much that can be done which remains undone. Existing acquisition programs are piecemeal and not applicable in many cases to water control and conservation purposes. Limited funds are available to undertake acquisition programs in a comprehensive manner.

E.

STATUTORY LAWS OF WATER CONTROL:
REGULATING LANDS AND WATERS
FOR WATER CONTROL PURPOSES

1. Undertaking Operations Pursuant to General Police Powers.

Some of the gaps in the powers described earlier can be filled by undertaking drainage operations pursuant to general police powers. Yet, other gaps persist, and other difficulties are associated with the utilization of police powers.

a. Nuisance Powers.

Local Boards of Health. Provisions permitting local boards of health to abate nuisances are applicable to the alleviation of some drainage problems on both public and private property "...wherever any...water in which mosquito larvae breed or cause of ill health is found..." (N.J.S.A. 26:3-49,50,56). A health board is authorized to notify owners or those in charge of areas where a nuisance exists, to order its abatement and failing compliance, to undertake abatement activities. The costs entailed therein are charged against those causing or allowing such conditions to continue and can be recovered by a civil action either

from the property owners or from municipalities wherein the problem existed (N.J.S.A. 26:3-54).

State Department of Health. The Department is authorized to supervise the exercise of the powers of local boards in accordance with standards which it may prescribe. It can take the initiative in abating nuisances (N.J.S.A. 26:1A-26 et seq.). By prescribing minimum health activities for local boards (N.J.S.A. 26:1A-15) and by formulating and enforcing a State Sanitary Code, the Department may control nuisances hazardous to public health, including those conditions conducive to the breeding of mosquitoes and other insects (N.J.S.A. 26:1A-7,23).

County Mosquito Extermination Commissions. County commissions are authorized to exercise powers of local boards of health in connection with the abatement of nuisances on private land (N.J.S.A. 26:9-10). They may request a survey from the Agricultural Experiment Station of suspected breeding places, notify the owner of the existence of a nuisance, and abate such a nuisance if there is no compliance (N.J.S.A. 26:9-5,8,9).

b. Civil Defense and Disaster Control Laws.

To a more limited extent, civil defense and disaster control laws may be utilized in crisis situations to undertake some water control operations. The Governor, and to a lesser extent, municipal and county disaster control officials are authorized to utilize the resources of the State and the federal government in situations declared to be "disasters," which are defined as follows:

...any unusual incident resulting from natural or unnatural causes which endangers the health, safety or resources of the residents of one or more municipalities of the State and which is or may become too large in scope and unusual in type to be handled in its entirety by regular municipal operating services (N.J.S.A. App. A:9-33 et seq.).

c. Nuisance Powers Evaluated.

There are both advantages and disadvantages in resorting to nuisance powers as a means of alleviating continuing water problems.

Advantages. The advantages are clear. First, nuisance powers may be invoked by health agencies and mosquito commissions for the broad and somewhat vague purpose of preserving the public health, comfort, safety, and the economic interests of the State. In addition, nuisance power has been broadly construed to extend to potential as well as actually hazardous conditions.⁴⁹ Second,

difficulties associated with the need to acquire rights-of-way to undertake work on the properties of uncooperative private owners are overcome by the legitimate exercise of police power. Third, public agencies abating nuisances may not be committed thereby to perpetual maintenance of such work. Fourth, local boards of health may perform work on public property (although county mosquito commissions may not).

Disadvantages. However, the utilization of nuisance powers to undertake drainage work does not provide the basis for a continuing and comprehensive drainage program. First, their use to meet specific problems does not require the formulation and promulgation of plans and standards in a comprehensive way. Court standards, applied to the abatement of individual nuisance situations, are indefinite in comparison with the expert determination of those with technical competence and resources to undertake a comprehensive program. Second, nuisance laws do not provide a basis for preventative programs. Their use does not result in rational decision-making based upon systematically developed data. Agencies invoking these laws often respond to specific situations as they arise or when they reach the critical stages. Often, there is no comprehensive and continuous program of inspection and policing. Third, nuisance powers do not apply to all problems associated with the control and disposal of water. Only certain conditions hazardous or injurious to public health may be abated, and not those which simply lead to discomfort or depreciate property values.⁵⁰ Fourth, there is much delay and confusion when disputes arising from the exercise of nuisance powers result in litigation. Vagueness in the scope of nuisance powers as they apply to specific instances is a distinct problem in invoking these powers. Fifth, nuisance powers are not an assignment of responsibility. Health and mosquito agencies may be wary of invoking them when political pressures are most intensely felt. Sixth, the problem of equitable allocation of costs is not solved by exercising nuisance powers. In a densely settled urban environment the contribution one makes to a water-related nuisance situation often is not clear.

2. Regulation of Waters, Watercourses.

The regulation of watercourses involves at least two distinct functions. One is the control and prevention of the obstruction of drainageways to facilitate the safe disposal of water. The other is the control of streamflows so that their heights and velocities do not overburden existing drainage facilities or result in flood damage. To an extent such functions can be performed pursuant to land use regulations discussed in the next section. In this section there will be an examination of those laws pertaining to the regulation of waters and watercourses.

a. Stream Encroachment Laws.

One means of facilitating the safe disposal of surface water runoff and channel flows is by enacting stream encroachment laws. A number of provisions permit public agencies on all levels to formulate and enforce such regulations. To the extent that they regulate private property, encroachment laws constitute an exercise of the police power and thereby modify riparian rights of private property owners.⁵¹

Federal Jurisdiction. It has been indicated that the federal jurisdiction is restricted to navigable waters pursuant to the interstate commerce clause of the U.S. Constitution.⁵² In this connection the Army Corps of Engineers is authorized to administer regulations to protect navigable waters of the U.S., to issue permits for structures over and in such waters, and to supervise projects therein (33 U.S.C.A. 401.491,540; 701a-1).⁵³

This power is very limited, however, and is not applicable to most of the waters and watercourses of the State.

State Regulation of Navigable Waters. The State is authorized to exercise regulatory authority over both public and private watercourses of the State. It has been indicated that the State has title to navigable waters within its boundaries.⁵⁴ In this connection the Department of Conservation and Economic Development, having general supervisory power over tidewaters and navigable waters, is authorized to regulate their encroachment (N.J.S.A. 12:3-2,3,4,8,13,14,19,21,22,26,27; N.J.S.A. 12:4-10, 12:5-1 et seq., 12:6-1 et seq., 48:7-9, 48:14-11).

However, this power is not applicable to the non-navigable drainageways in the State.

State Encroachment Law. The statutory language of the State Encroachment Law is broad. It provides that no "structure" within the "natural and ordinary highwater mark of any stream" shall be made by any public agency or private person without notifying the Division of Water Policy and Supply and without its approval (N.J.S.A. 58:1-26). In addition, the Division can order the removal or repair of any existing structure built subsequent to the enactment of the encroachment law in 1929, within the natural and ordinary highwater mark of any stream (Ibid.). Thus, based upon the statutory language, the Division has control over unnatural obstructions, both prior to their construction and after they have been constructed. Furthermore, the term "structure" has been interpreted broadly to apply to the regulation of the construction of dams, bridges, culverts, walls, to land-fills, to the construction of channel improvements, to pipe crossings, and to "other encroachments."⁵⁵

At the same time, there are limits inherent in the statute. First, there is no statutory mandate for the Division of Water

Policy and Supply to take the initiative in delineating and marking encroachment lines on all stream channels in the State. Such determinations are not made until applications or complaints are filed with the Division and are acted upon. Thus, only a general administrative policy has been developed, interpreting "the natural and ordinary high water mark."⁵⁶ Second, regulation of encroachments applies only to "any stream," which means that it applies to all well defined watercourses as defined previously,⁵⁷ but not to less defined storm drainageways such as depressions and swales. Third, regulation extends to only "structures"; that is, artificial or unnatural obstructions. Thus, the statute does not impose responsibility for the maintenance of streams obstructed as a result of natural, or difficult to determine causes.

Also, there are administrative limitations in the exercise of the statute. First, in interpreting statutory term "natural and ordinary highwater mark," the Division of Water Policy and Supply has delineated encroachment lines which do not preserve flood plain storage, and has not based them upon the channel and flood plain as they exist or as they are likely to exist in the reasonably near future. Instead, they are based on either a rectangular or trapezoidal improved channel required to safely pass a design flood. Calculations of the design flood are based upon the size of the drainage area of the stream. Second, the Water Policy and Supply Council does not require the approval of new projects involving stream channels draining an area of less than 1/2 square mile, although it does require those proposing the undertaking of projects on or adjacent to all streams, whatever the size, to notify the Council of their plans. What the Council has done is to delegate responsibility for regulating these smaller streams to municipalities. When this responsibility is not assumed by municipalities, gaps exist in the regulation of many of the streams where critical flooding problems may occur. Third, because of the lack of resources at the disposal of the Bureau of Water Control and because the Attorney General's office cannot handle adequately referrals pertaining to encroachment applications and violations, there is a backlogue of applications and of actions to be taken.

In summary, State encroachment laws have been found to be deficient in a number of particulars. First, there are limits in their application because of restricted authorizations. Second, the exercise of the existing authority has been further restricted for administrative reasons. There is no State policy as to the delineation of encroachment lines and enforcement of encroachment regulations throughout the State; political subdivisions have received some encouragement, but neither are aided nor required to fill in the gaps left by the authorizations of the Division of Water Policy and Supply.

Special or Regional Agencies. The next area to be explored is the extent to which the gaps in the State law are filled or compensated by encroachment regulations enacted by agencies on other governmental levels.

Of the special agencies surveyed below the State level, only the Delaware River Basin Commission has jurisdiction over a major drainage basin and has been authorized to establish encroachment lines and to regulate encroachments (N.J.S.A. 32:11D-35). To implement the standards it has established, the Commission may grant technical and financial aid to any municipal corporation (Ibid.) and review and approve or disapprove those projects proposed within the Basin "having a substantial effect upon the water resources of the Basin" (N.J.S.A. 32:11D-21). However, as a matter of administrative policy, the Commission has excluded from its review authority: those encroachments on streams within the basin caused by floating docks, anchorages, buoys and navigation aids, and temporary structures; the placement of fill or the construction of dikes on the streams within the basin except the Delaware River, the tidal portions or tributaries thereto, and streams draining more than one State; and bridges and highways unless they pass across an existing or proposed reservoir or recreation project area shown in the Comprehensive Plan.⁵⁸

Counties. In some cases individual counties encompass entire watershed areas and are logical units to regulate stream encroachments. However, counties have been granted few applicable powers. Only in counties having a population of more than 200,000 and less than 400,000 are boards of chosen freeholders authorized to fix encroachment lines adjacent to brooks or streams beyond which no structure may be erected (N.J.S.A. 40:29-8). There is no evidence that such authority has been exercised.

Municipalities. The power granted to municipalities to establish encroachment lines and to regulate encroachments in some ways may be more far-reaching than the authority of the State Division of Water Policy and Supply. Municipalities are authorized to define the location and establish widths, grades, and elevations of any

stream, creek, river or other
waterway (N.J.S.A. 40:56-10).

Conceivably, this provision could be broadly interpreted to apply to less defined storm drainageways as well as to stream channels.

However, there is some question as to the effectiveness of municipalities as regulating units in this connection. In the first place, the enabling provision is merely permissive and not an assignment of responsibility. There is evidence that only 18 municipalities have enacted encroachment ordinances.⁵⁹ Obviously, there are few inducements for municipalities to enact such ordinances. Their enactment involves some sacrifice, some expense, and the possession of skills and data not normally available on the local level. Second, municipalities are too small. Most streams transcend municipal boundaries. Unless the enactment of encroachment ordinances is controlled at a higher level, coverage will not be comprehensive and standards will not be uniform within entire drainage areas.

In a comprehensive study of encroachment laws in a number of States, one expert has concluded:

...experience to date in areas where such authority (to prevent channel encroachments) has been given to local governments has proved that such delegation is ineffective.⁶⁰

Findings in New Jersey support this conclusion.

b. Regulation of Dams.

One method of controlling streamflows and preventing encroachments is regulating the construction and repair of dams.

Generally, the Department of Conservation and Economic Development has jurisdiction over the construction and maintenance of dams (See, N.J.S.A. 58:1-9,33). First it can regulate the construction of dams by means of the stream encroachment law (N.J.S.A. 58:1-26). Second, for safety purposes it can attempt to protect downstream developments by supervising the construction and repair of dams which raise waters therein by more than five feet above their usual low water mark on any river of the State (N.J.S.A. 58:4-1). Third, it has some authority to regulate the construction of dams to protect navigation interests (N.J.S.A. 12:3-4, 48:7-9, 48:14-11).

While the construction of dams and the regulation of their construction and repair significantly involve and affect water control programs, the laws pertaining to dams have some limitations. First, they are not applicable to the regulation of the release of impounded water. Second, the basic dam law was not intended to prevent encroachments on streams, but only to insure the structural safety of dams. Thus, there is a need for the coordination of policies involving upstream and downstream water control techniques.

c. Streamflow Regulations.

A means of preventing or controlling downstream water damage is the regulation of streamflows. Such control can be accomplished by the construction of various types of facilities referred to previously.⁶¹ In addition, regulatory laws under various titles may be applied to the control of streamflows. Such regulation can be effective only when exercised by agencies encompassing entire drainage areas.

State Regulation. On the State level a number of provisions may be utilized. First, the Water Policy and Supply Council is authorized to regulate the diversion and withdrawal of surface water for both private and public uses (N.J.S.A. 58:1-17 to 24,

33,35 to 50). By this means some control over channel flows can be accomplished by increasing the amounts that can be withdrawn or diverted during peak flow seasons. However, the principal purpose of these laws is water conservation and the maintenance of streamflows at acceptable levels so as to control pollution. Second, to an extent the State may regulate the releases of water from State-owned reservoirs during periods when flows are at low stages (N.J.S.A. 58:20-1 et seq., 58:22-1 et seq.). Potentially, such controls could be extended to flows at high stages. However, there are few State-owned reservoirs and such controls would have limited impact throughout the State.

Delaware River Basin Commission. The Commission has been granted applicable powers which are limited in application. First, it has authority to regulate withdrawals and diversion of waters within the basin (N.J.S.A. 32:11D-51,52,53). These powers share the weaknesses of the counterpart State powers and, in addition, they are confined to the Delaware River Basin. However, the Commission is authorized to store and release waters of the Delaware River and its tributaries as it deems appropriate (N.J.S.A. 32:11D-19,34).

Evaluation of Streamflow Regulations. Thus, these laws, such as they are, do not explicitly authorize streamflow regulation for drainage or flood control purposes. Furthermore, they do not adequately deal with the problems involving flows of high velocity and heights resulting from high intensity land uses and the disposal of surface water.

3. The Application of Planning Laws to Water Control.

Planning laws may be applied to the regulation of lands and waters for water control purposes.

a. Formulation and Enforcement of Planning Standards, Master Plans.

One criterion for an adequate water control program is the formulation and promulgation of standards and plans within broad functional areas. The following is an evaluation of laws pertaining thereto and the exercise of such laws.

Municipalities. Within municipalities, governing bodies, planning boards, local boards of health, and sewerage districts and authorities may formulate plans and standards pertaining to water control.

The municipal planning law is most explicit as to the scope of such authority (See, N.J.S.A. 40:55-1.1 et seq.). First, provisions pertaining to the adoption of master plans provide for the inclusion of proposals for conservation and flood control.

Second, if adopted, municipalities can require that public projects be referred to the agency administering the master plan. While such is not veto power, it does constitute a significant measure of potential control over projects as they affect the master plan.

There are some difficulties associated with these provisions as they apply to water control. First, there is no explicit authority for municipalities to adopt drainage and flood control plans and standards, and to review and pass upon all activities, both public and private, which might affect them. Second, even if such powers were granted, municipalities are too restricted in size to provide uniform standards which could be enforced within entire drainage areas. Furthermore, alone, municipalities cannot develop data upon which to base sound decisions with respect to their impact upon entire drainage areas. Third, there is evidence that many municipalities have not exercised the power that they have been granted. A survey accounting for municipal planning activities up to July, 1962, indicated that in the 567 New Jersey municipalities, 485 had planning boards, 343 had completed master plans, and only 168 had adopted master plans.⁶² In addition, few municipal water control plans have been found to exist.⁶³

Counties. For water control purposes, counties are adequate planning units. However, county planning laws share many of the weaknesses of municipal planning laws and few of their strengths.

First, provisions pertaining to the scope of master plans are not explicit. Planning boards merely are authorized to include within their proposals, the location, character and extent of waterways (N.J.S.A. 40:27-2).

Second, planning boards are not authorized to require that public or private activities in each county be referred to them before they are begun. In this connection they are authorized merely to encourage local municipalities within the county to cooperate in maintaining the integrity of county master plans (Ibid.), and to advise boards of freeholders with respect to the formulation of development programs and budgets for capital expenditures. County planning boards can affect the decisions of municipalities only insofar as they are authorized to report to any local authority having the power to approve plats before approval of any plat is made (N.J.S.A. 40:27-7).

Third, there is evidence that counties have not exercised those powers which they do possess. While there are 17 planning boards in the 21 New Jersey counties,⁶⁴ there are great variations as to the scope and quality of their programs. Other agencies such as mosquito extermination commissions, soil conservation districts, and sewerage authorities do formulate plans and standards within counties. However, the comprehensiveness of such plans varies from county to county; they are not coordinated with those adopted by county planning boards, and these agencies do

not possess significant regulatory powers to enforce those plans. There is little evidence of any coordinated drainage or flood control plans within single counties.⁶⁵

Interjurisdictional Regional Plans. The agencies with planning authority considered in this section are the following: (a) the Delaware River Basin Commission; (b) soil conservation districts; (c) regional planning boards; (d) sewerage districts; (e) the Corps of Engineers, the Soil Conservation Service and State agencies within drainage basins and other regions; and (f) water supply districts. In few instances was adequate authority found to exist for the formulation and promulgation of comprehensive plans and standards pertaining to water control and conservation within entire drainage areas or within areas coterminous with the scope of water problems.

Of all the agencies examined, only the Delaware River Basin Commission is authorized to formulate plans and standards explicitly, for all aspects of water control (N.J.S.A. 32:11D-1,15) and to review and pass upon all activities which might affect its Comprehensive Plan (N.J.S.A. 32:11D-21).

Another type of agency that can formulate and promulgate plans and standards is regional planning boards. For a number of reasons, laws pertaining to their formation and operation were found to be inadequate. First, there are no specific powers granted to regional agencies. They are merely authorized to make a master plan as may be essential to the physical development of the region (N.J.S.A. 40:27-10). Second, they are limited to the powers granted to them, by participating municipalities and/or counties (N.J.S.A. 40:27-11). Third, regional boards are isolated from those general governing powers which must be used to implement plans and enforce regulations.

Soil Conservation Districts are authorized to develop comprehensive plans for the conservation of soil resources and for the control and prevention of soil erosion within each district (N.J.S.A. 4:24-22). However, the purposes of such plans are limited and, except insofar as districts are authorized to formulate and enforce land use regulations (N.J.S.A. 4:24-25), there are no adequate procedures to promulgate these plans and to coordinate them with those of other governmental units within each district.

Other provisions and programs administered by agencies on the State and Federal levels may be applied to the formulation of regional plans, but these are piecemeal and not primarily related to water control. First, the Division of Water Policy and Supply is authorized to investigate and regulate the use of waters in the principal watersheds of the State to prevent floods and for other water resources purposes (N.J.S.A. 58:1-11). While the Bureau of Water Resources has begun or participated in investigations and studies, there is little evidence of any comprehensive State

planning being undertaken within watershed or drainage basins. Second, while the State Division of State and Regional Planning has undertaken regional studies and developed criteria for regional planning, these have not primarily been related to water control and conservation, nor has the Division any powers to promulgate such plans. Third, the Corps of Engineers has undertaken and the U.S. Soil Conservation Service has been authorized to undertake watershed or basin studies. However, these usually are confined to specific aid programs.

Various non-official groups have undertaken to develop plans or initiate studies on a regional basis. Several watershed associations have served to impose a watershed consciousness in connection with water resources. Other agencies have had a wider range of concerns. These attest to the need for planning in functional areas which transcend existing jurisdictional boundaries. At present, there is little coordination of such plans and programs.

State Planning Programs. A number of agencies on the State level are authorized to formulate plans and standards in connection with water control and conservation and, to an extent, to promulgate such plans and standards. The Division of Water Policy and Supply in the Department of Conservation and Economic Development has been granted supervisory authority in connection with water control and conservation (N.J.S.A. 58:1-9,11). The Division of State and Regional Planning, the principal State planning agency, is authorized to prepare a comprehensive guide plan (N.J.S.A. 13:1B-15-52). The Department of Health is authorized to prescribe minimum standards of health (N.J.S.A. 26:1A-15), to establish and enforce a Sanitary Code (N.J.S.A. 26:1A-7,9,23), and to supervise sanitary engineering facilities (N.J.S.A. 26:1A-37). The Agricultural Experiment Station reviews work plans of county mosquito commissions (N.J.S.A. 26:9-22). The State Soil Conservation Committee reviews plans of soil conservation districts (N.J.S.A. 4:24-3,17,20,2.1,12.1). The Highway Department develops plans and standards in connection with protecting the construction and improvement of State roads.

All of these authorizations are or are potentially applicable to water control and conservation. Yet, there is no coordination of these programs and no evidence of any overall State-wide development of plans and standards. While the Division of Water Policy and Supply has undertaken some regional studies--collecting and developing data, participating in Federal studies, and developing standards in the administration of its varied programs--it has not initiated the development of comprehensive plans and standards for the State. The plans of the Division of State and Regional Planning, while generally useful in the area of water resources policy, are not useful for making many of the technical decisions connected with water control and conservation. The standards developed by the Department of Health, while useful in dealing with water-related nuisances, have limited applicability

to water control. In particular, it is not authorized to approve the construction of sewers and sewage treatment plants according to planning standards or with reference to a comprehensive guide plan.⁶⁶

Imposition of State Planning Standards. There are few "carrots" and even fewer "sticks" on the State level which could be applied to the enforcement of planning standards developed on the State level.

The Division of State and Regional Planning, the principal planning agency, lacks the most effective planning tools of control the zoning power and subdivision controls. The authority of the Division is limited to the coordination of the activities of the State departments and to the stimulation and coordination of local, county, and regional planning activities. At the same time, the Division of State and Regional Planning can impose a consciousness of the dimensions of water control problems on counties and localities. In its administration of federal funds pursuant to sections 701 and 702 of the Federal Housing Act of 1954, section 103-d of the Federal Housing Act of 1949, and the New Jersey 50/40 program, it could encourage the imposition of some standards pertaining to drainage and flood control as a condition of the granting of such aid. However, drainage and flood control are not the principal purposes of these provisions; only incidental benefits can be derived from the imposition of certain standards as a condition to the granting of aid.

Pursuant to the local assistance program of the "Green Acres Law," the Commissioner of Conservation and Economic Development may exercise control over the land use practices of participating municipalities by prescribing terms and conditions under which a grant will be made and by withholding funds until regulations are adopted and approved by him (See, N.J.S.A. 13:8A-9,10). However, water control and conservation is not a primary purpose of the law. The imposition of too many conditions may result in further resistance on the part of municipalities to participate in the program.

Pursuant to the aid programs of the Federal Department of Health, Education and Welfare, the State Department of Health can impose some planning standards in administering funds to aid local communities (33 U.S.C.A. 466b,d,e). However, limited funds are available for such purposes, and they apply to the construction of only facilities connected with water pollution control.

The State Highway Department might promulgate uniform water control standards pursuant to its State-aid road program (N.J.S.A. 27:9-1, 27:10-1). However, these funds have very limited application.

In summary, planning on the State level generally is inadequate in connection with the formulation of promulgation of

plans and standards pertaining to water control and conservation. First there is no authorization for the development of a comprehensive plan or plans for the coordination of plans of various agencies. Second, there are few enforcement tools on the State level. State agencies lack the basic regulatory tools of control. Third, there are inadequate funds connected with water control and conservation to aid local communities in formulating plans of their own or to encourage the promulgation of uniform standards developed at the State level.

b. Subdivision Review; Official Maps.

Subdivision controls and official map laws can be applied to the regulation of drainageways, to the regulation of land use practices affecting water control, and to the control of storm drainage systems. Existing enabling law was found to be inadequate.

Municipalities. Effective regulation of public and private activities affecting water control can be undertaken pursuant to subdivision and municipal map legislation.

First, governing bodies or planning boards can review for approval or rejection all plats of subdivisions within their jurisdictions (N.J.S.A. 40:55-1.14,1.17). In acting upon plats they may require that all tracts be suitably drained, and that all lots shown on plats be adaptable for intended purposes without danger to health, peril from flood, fire, erosion, or other menace (N.J.S.A. 40:55-1.20). In addition, if portions of a master plan contain proposals for "drainage rights-of-way" or if standards for the allocation of portions of subdivisions for "drainage rights-of-way" have been adopted, before approving subdivisions planning boards may require that these rights-of-way be shown in locations and of sizes suitable for their intended uses (Ibid.). Furthermore, before the final approval of plats, municipal governing bodies may require, in accordance with standards adopted by ordinance, the installation or furnishing of a performance guarantee in lieu of storm sewers and drainage structures (N.J.S.A. 40:55-1.21).

Second, legislation enables municipal governing bodies, by ordinance, to adopt official maps indicating the location and widths of "drainage rights-of-way" (N.J.S.A. 40:55-1.38). Thereafter, the issuance of permits for any building thereon can be prohibited (Ibid.). Consequently, such regulation might be extended to single site developments as well as to subdivisions.

Counties. County regulatory authority is less extensive than that of municipalities.

First, their plat reviewing authority is restricted. They may withhold approval of plats only of subdivisions which shall or may drain storm water directly or indirectly to a county road or

roads, if adequate drainage facilities are not provided for thereon (N.J.S.A. 40:27-12).

Second, official map legislation on the county level is weak. Its regulation only extends to those sites under county jurisdiction or in the construction, acquisition, or financing of which the county has participated or may be called upon to participate (N.J.S.A. 40:27-5). Furthermore, it prohibits only building in the bed of any county highway shown on a map (N.J.S.A. 40:27-6).

Evaluation of Subdivision Controls and Official Maps.

The provisions discussed above are inadequate in a number of ways.

First, on both the municipal and county levels, plat review applies to the regulation only of those subdivisions proposed for development or redevelopment. They do not apply to the regulation of individual site developments or to undeveloped lands. At the same time, official map legislation might be applied to the regulation of single sites as well as subdivisions.

Second, subdivision regulations only require that adequate drainage facilities be provided on lands shown on plats. There is no explicit authority to regulate the development of flood prone areas, indiscriminate landfills, and arbitrary grading of lands affecting water control. They do not control erosion from development sites blocking streams. In addition, they do not deal with the downstream problems resulting from the disposition of storm surface water. There are no explicit provisions requiring that those responsible for aggravating or causing a downstream problem, pay to alleviate such problem in proportion to their contribution to its development. There are no provisions explicitly dealing with the problem of the liability which may be incurred by increasing velocities of downstream flows. It is to be noted, however, that some counties have attempted to aggregate their powers pertaining to subdivision controls with those pertaining to the regulation of county roads to deal with some of these problems (See, N.J.S.A. 27:16-31 and 27:16-30). A few counties have elicited "contributions" from developers to provide for adequate on- and off-site drainage facilities and to protect county roads, bridges, and culverts. While these measures extend the scope of county control, in many cases counties must act without explicit statutory authorization. The fact that such controls have been attempted, however, attests to the need to fill in statutory gaps where they exist.

Third, in both the Municipal Planning and the Official Map Laws the designation and regulation of "drainage rights-of-way" is limited by definition to:

lands required for the installation of storm water sewers, or drainage ditches, or required along a natural stream or watercourse for

preserving the channel and providing for the flow of water therein to safeguard the public against flood damage in accordance with N.J.S.A. 58:1-1 to 34 (N.J.S.A. 40:55-1.12, 1.31).

There is no explicit authority to determine widths and slopes of drainage rights-of-way according to some uniform standards throughout the State. In addition, the regulation of storm water drainageways which are not as well defined as ditches or channels is not within the purview of these provisions.

Fourth, neither municipalities nor counties are totally adequate regulatory units. There are no explicit provisions for the formulation of standards of control for entire drainage areas which transcend municipal and county boundaries. In addition, even those standards enforced within county and municipal jurisdictions, without political support at the State level, might be modified by granting exceptions in response to local political pressures.

Fifth, these provisions are permissive; they are not assignments of responsibility. Unless there is support at the State level adoption of even the existing inadequate provisions is not assured. Available evidence indicates much less than universal enactment of these enabling provisions.⁶⁷

c. Zoning Regulations.

Scope of State Zoning Law. Zoning laws can be applied to the regulation of drainageways and of land use practices affected by and affecting water control. It has been indicated that the zoning power of the State resides in the State Legislature. Article 4, Section 6, paragraph 2 of the State Constitution provides:

The Legislature may enact general laws under which municipalities, other than counties, may adopt zoning ordinances. [Emphasis provided]

Pursuant to this provision of the Constitution, the Legislature has passed the Municipal Zoning Law. As amended in May 1964, this law authorizes municipalities to enact zoning ordinances establishing such regulations which

...shall be in accordance with a comprehensive plan and designed for one or more of the following purposes: to secure safety from fire, flood, panic and other dangers (N.J.S.A. 40:55-32). [Emphasis provided.]

Thus, it is apparent that the zoning power can be applied to prevent conditions causing flooding. This would apply both to the regulation of drainageways and of adjacent flood plains.

Problems Associated with State Zoning Law. There are some difficulties with the zoning power in the State which has rendered it ineffective as a drainage and flood control tool.

First, the Constitution has limited the exercise of zoning powers to municipalities. There is considerable doubt whether municipalities are the most logical units to exercise such powers in connection with water control.⁶⁸ Zoning, as an effective tool for the preservation of basic watercourses and drainageways, and the regulation of flood plains, requires comprehensive coverage and the imposition of uniform standards within entire watershed areas throughout the State. Individual municipalities acting alone or even in conjunction with a few other municipalities could not provide adequate coverage. Insofar as counties encompass entire watershed areas in some cases, they would be more logical zoning units. Yet, they are prohibited from exercising such power. The State is a more logical level for undertaking zoning responsibilities or at least assigning such responsibilities to other governmental levels, yet it is not authorized to take any initiative in this area.

Second, the zoning enabling legislation is permissive, not mandatory. Available evidence indicates that only 18 municipalities have exercised their authority by enacting zoning ordinances as flood prevention measures.⁶⁹ Flood plain, or floodway zoning imposes direct costs on municipalities in that it involves the collection and development of data concerning flood prone areas prior to the enactment of regulations. While data may be obtained from various sources on all governmental levels, there is no comprehensive program to provide technical assistance to municipalities. Furthermore, flood plain zoning involves indirect costs in that it may decrease potential ratables by limiting maximum development of land. Without some crisis situation indicating to municipalities that there are benefits to be derived from zoning flood prone areas so as to limit their development, municipalities have a narrow conception of their self-interest. Thus, in order for there to be effective zoning of flood prone areas in the State there must be either assignments of responsibilities for such zoning or some incentives for municipalities to enact ordinances. Except insofar as the Delaware River Basin Commission is authorized to grant financial aid to municipalities to give effect to regulatory standards devised by the Commission, there are few incentives for municipalities to restrict the development of flood prone areas.

Third, other constitutional proscriptions have acted to invalidate zoning ordinances.

One constitutional question involves the extent to which zoning ordinances are considered by the courts to be a taking for public use without compensation and due process and therefore in violation of the New Jersey Constitution, Article 1, Section 20.⁷⁰ The State zoning law provides explicitly that zoning regulations:

shall be made with reasonable consideration among other things, to the character of the district and its peculiar suitability for particular uses and with a view of conserving the values of property and encouraging the most appropriate use of land through such municipality (N.J.S.A. 40:55-32).

An analysis of court decisions has indicated that the valid use of zoning power in connection with drainage and flood control is a matter of the degree of regulation and the competence of those drafting ordinances. The courts have invalidated zoning ordinances: restraining all use of private land for the benefit of property owners;⁷¹ prohibiting all uses for any reasonable purpose so as to permit only those uses for which the property was not adopted or which were economically unfeasible.⁷² In a recent case the New Jersey Supreme Court invalidated a township ordinance which greatly restricted the use of swampland and had for its prime object the retention of land substantially in its natural state essentially for public purposes. The court contended that this constituted a taking of land for public use without just compensation.⁷³ On the other hand, New Jersey courts have given broad discretion to municipalities in zoning matters and have declared that the Constitution should be liberally construed in their favor.⁷⁴

A number of criteria have emerged from the body of New Jersey case law: reasonableness of zoning ordinances is the test and reasonableness is presumed;⁷⁵ and zoning ordinances must be part of a comprehensive plan or bear a reasonable relationship to one of the statutory purposes of zoning.⁷⁶

The other constitutional problem involves the "equal protection clause" of the U.S. Constitution.⁷⁷ In this connection, while municipalities can classify land areas within their jurisdictions, classifications in their zoning ordinances must be "reasonable." The New Jersey Courts have ruled that the equal protection clause of the U.S. Constitution is not violated if zoning classifications do not discriminate arbitrarily and use restrictions are general and uniform in a particular district.⁷⁸

Considerations in Overcoming Problems in Enacting Zoning Provisions. Examination of case law in other states as it pertains to flood plain zoning has revealed the following: (a) land use regulations of flood plains have withstood attacks when they had as their objectives preventing external diseconomies, and the protection of land owners from their own irrationality in the assumption of flood risks. Where they have failed, land use

regulations usually have violated the equal protection clause of the U.S. Constitution being unequal or discriminatory classifications.⁷⁹ (b) When land use regulations, which local governments are authorized to promulgate, are calculated to benefit the public by means of adjustment to flood conditions as a part of an overall community plan, they have been upheld.⁸⁰

In one comprehensive study it was indicated that in order to meet the legality test for zoning, at least the following must pertain:

- (1) State enabling legislation must empower the communities to enact the necessary zoning ordinances containing flood plain provisions.
- (2) The flood plain provisions must be comprehensive in scope. They must not include just small, selected areas of the flood plain, for to do so would be discriminatory.
- (3) The stated purpose of the provisions must be realized by compliance; provisions must be such as to accomplish stated ends.
- (4) All provisions must be documented with factual data from flood experience, and if necessary, engineering studies of possible future flood tendencies.
- (5) The provisions of the ordinance must be reasonable.⁸¹

The reasonableness test is passed: (a) if an ordinance is based on sound engineering studies and data and upon a comprehensive plan of the community as a whole; and (b) if allowable uses of flood-zoned land is based upon the estimated needs of the community, the availability of sufficiently suitable land in the community for those needs and the anticipated growth of the community.⁸²

Consequently, it would appear that zoning ordinances which restrict land uses to protect against flooding will be upheld when they: (a) are commensurate with the risks involved; (b) protect the public from the abuse of private rights; (c) are reasonably related to the statutory purposes of zoning; and (d) are not discriminatory, arbitrary classifications of land use. It is apparent that local units need to have legal and technical advice and adequate data upon which to base zoning districts. Such assistance can not be generated from within municipalities alone, but must be forthcoming from the State.

Finally, since zoning ordinances can not be retroactive, there is need for both non-conforming use clauses and provisions authorizing the acquisition of developed lands specifically applicable to water control zoning. The latter authority is not provided in New Jersey statutes.

Land Use Regulations: Soil Conservation Districts. More limited zoning authority is granted to soil conservation districts. Supervisors of any district are authorized to formulate regulations governing the use of lands within the district in order to conserve soil and soil resources and prevent and control soil erosion (N.J.S.A. 4:24-23).

There are a number of limitations to this authorization. First if 20 per cent of the landowners within a district object, district supervisors do not have the authority to enact regulations (Ibid.). Second, the purposes of such regulations are somewhat limited to the conservation of soil resources and the control of soil erosion (Ibid., and N.J.S.A. 4:24-25).

Furthermore, there are administrative difficulties associated with this authority. First, unless there is coordination among districts, standards might differ within drainage areas which transcend district boundaries. Some coordination is possible by means of the supervisory role of the State Soil Conservation Committee, however. Second, there is no evidence of this authority being enacted by district supervisors. Without sufficient political support, the exercise of this authority is difficult.

d. Standards for Flood Plain Use.

Other provisions pertain to the delineation of flood prone areas and the formulation of standards as to their use.

State Division of Water Policy and Supply. State law has granted limited authority to the Division to delineate and mark flood hazard areas, but has not authorized the Division to regulate land use practices in such areas (N.J.S.A. 58:16A-50,52).

There are limits in both the authorization and in its exercise. First, the authority to mark such delineated areas is limited to State property and to county, municipal, and private property only with the permission of those in charge of such property (N.J.S.A. 58:16A-53). Second, because of lack of funds and resistance, this authority has not been exercised to any extent.⁸³

Delaware River Basin Commission. Similarly, the Commission is authorized to delineate areas subject to flooding including the classification of lands with reference to the relative risk of flood and the establishment of standards for flood plain use (N.J.S.A. 32:11D-35).

The authority of the Commission to mark such areas conspicuously is not subject to the limits of the State authority (See, N.J.S.A. 32:11D-37). Furthermore, the Commission is authorized to provide technical and financial aid to any municipal corporation within the basin for the administration and enforcement

of land use ordinances giving effect to the standards formulated by the Commission (N.J.S.A. 32:11D-35).

However, it appears that, as in the case of the State Division of Water Policy and Supply, the Commission is not authorized to regulate land uses to give effect to the standards as formulated.

e. Building Codes.

A building code is a set of rules to protect people from physical or financial injury.

There is evidence that in some states, communities are enacting building codes to regulate development to reduce flood damage.⁸⁴ However, no such evidence was found in New Jersey.

F.

STATUTORY LAWS OF WATER CONTROL:
THE COLLECTION AND DEVELOPMENT OF DATA

1. A Data Inventory.

Sound decisions pertaining to the formulation of plans and standards, the undertaking of operations and the enforcement of regulations, require adequate data. While an exhaustive inventory of all types of data required has not been made, the major types are assayed below.

First, there is need for general hydrological data which has applicability to all aspects of water resources management. Among these data are records of rainfalls, runoff curves, flood frequency curves, hydrographs of past major floods, and data on the monetary extent and type of flood damage previously experienced.

Second, there is need for maps and photos, including topographical maps, contour maps, and aerial photos.

Third, there is need for comprehensive and up-to-date surveys of the watercourses in the State, including surveys of depths, flows and encroachments, historical records of water-courses, profiles of streams and rivers, cross-sections of channels and flood plains, and dimensions of bridges and culverts.

Fourth, there is need for comprehensive data on soils, contours and slopes, including the characteristics of soils and the relationship of soils, cover, and contours to surface water runoff and percolation.

Fifth, there is need for population and land use data indicating past, present, and projected future development and land uses, and the elevations of existing structures and facilities.

2. General Data Collection and Development.

a. County and Municipal Agencies.

Agencies on the local level, generally, do not have the resources or the size to be completely effective developers of data, but cumulatively, they can collect useful data pursuant to programs authorized under a number of different titles.

Municipalities. Planning boards can make a contribution. They are authorized to include within their master plans proposals for water and sewerage facilities, soil conservation and flood control (N.J.S.A. 40:55-1.1). They are authorized to make studies pertaining to the physical development of municipalities (N.J.S.A. 40:55-1.12). Furthermore, they may require some information from developers in connection with the review of subdivision plats (N.J.S.A. 40:55-1.14, 1.17, 1.20). The kind and extent of data collected pertaining to water control varies considerably, however, and depends on the capabilities and interests of each municipality.

Municipal Engineers may collect data in connection with their powers to certify approvals of subdivision plats and to supervise the construction of facilities and the construction of roads.

Local boards of health are sources of data in the performance of sanitary surveys, inspections and other functions.

Generally, the data gathered pursuant to these authorizations were found to be inadequate for making many water control decisions. Furthermore, without some kind of clearinghouse, the amount of data in usable form cannot be easily ascertained.

Counties. Similarly, on the county level data are collected and developed by a number of agencies, but only are partially applicable to water control decision-making. Furthermore, there is need for a clearinghouse to afford easier access to existing data by agencies on all levels.

Planning boards can collect and develop data by preparing master plans (N.J.S.A. 40:27-2), by requiring municipalities to file their master plans (N.J.S.A. 40:27-4), and by reviewing

subdivision plats (N.J.S.A. 40:27-12). These data, if collected and developed, only apply to some problems in each county. Furthermore, not every county has a planning board and those which exist vary greatly.

County engineers, in every county of the State, can be most effective data gatherers in connection with their authority to supervise road work, to inspect bridges and culverts, and to supervise the construction of sanitary facilities.

Mosquito commissions which exist in 20 counties gather data in connection with the performance of their functions.

b. Regional Programs.

While there are various programs pertaining to the collection of data on a regional basis encompassing entire drainage basins, generally, it was found that such programs are not comprehensive in scope, nor in geographical coverage.

A number of special agencies, such as the Delaware River Basin Commission (N.J.S.A. 32:11D-1 et seq.), soil conservation districts (N.J.S.A. 4:24-22), and regional planning boards (N.J.S.A. 40:27-10), collect data within functional areas. Of these, only the Delaware Commission has undertaken a truly comprehensive program within a major drainage basin. It develops data in formulating a comprehensive plan and in reviewing activities which may affect that plan. It is authorized to delineate areas subject to flooding within the Basin, including the classification of lands according to the degree of relative risk of flooding (N.J.S.A. 32:11D-35).

There are a number of provisions authorizing State and Federal agencies to collect and develop data within entire watersheds, but these have resulted in only piecemeal and generally unsatisfactory programs. The Division of Water Policy and Supply in the State Department of Conservation and Economic Development is authorized to undertake investigations in each of the principal watersheds in the State (N.J.S.A. 58:1-11). However, there is no evidence of a continuing program of data collection and development throughout the State. Pursuant to authorizations of the U.S. Fish and Wildlife Service, the State Division of Fish and Game may undertake river basin studies of the impact of projects undertaken pursuant to various federal programs. Similarly, in connection with Federal Public Law 566, the U.S. Soil Conservation Service is authorized to aid in the undertaking of river basin studies (16 U.S.C.A. 1006). Again, there is evidence of a need for more sustained and comprehensive programs to ascertain the impact of various developments and programs on water control and water resources in the major drainage areas of the State.

There are some non-official watershed associations and other private research groups which do undertake research on a regional basis within the State.⁸⁵ There is a need on the part of public agencies to coordinate the efforts of such groups in this connection.

c. The Role of State Agencies.

The great burden of collecting and developing data should fall on State level agencies, because they possess higher levels of technical competence generally, because they have easier access to public funds, and because existing political subdivision boundaries must be transcended to insure state-wide coverage. Generally, it was found that while numerous agencies gather data for many parallel and overlapping purposes, there is neither a continuing comprehensive program applicable to water resources policy-making nor is there any adequate registering and coordinating of those data which are collected and developed.

The Department of Conservation and Economic Development is the logical center for the collection and development of pertinent data. First, the Division of Water Policy and Supply especially is in a unique position to gather data pursuant to its authority to review stream encroachment applications (N.J.S.A. 58:1-26), to regulate dams (N.J.S.A. 58:4-1 et seq.), and to regulate diversions of water (N.J.S.A. 58:1-35 to 50, 58:1-17 to 24 and 33). Yet, it has insufficient funds to undertake a comprehensive program and has not adequately performed the function of coordinating data collection and development programs undertaken on all levels. Second, the Division of State and Regional Planning collects and develops data in the course of: coordinating the development activities of the major departments in the State government; preparing and maintaining a comprehensive guide plan; in assisting local, county, and regional planning activities (N.J.S.A. 13:1B-15.52); and acquiring data on capital improvements programming. However, while many of these data are useful, it was found that the Division does not develop the kind of data which can be used in making many water control decisions. Third, the Division of Fish and Game can acquire some useful data from almost every region of the State through its conservation officers (N.J.S.A. 23:2-4,10).

The Water Resources Research Institute at Rutgers University is another source of comprehensive data which can be used throughout the State to aid in all water resources management decisions. Its usefulness could be enhanced if it was tied in to other data programs and agencies throughout the State in some more highly structured way.

Other agencies on the State level acquire data which cumulatively can be applied to the making of water control decisions. However, unless they are coordinated and registered at

some central point, access to them is difficult. First, the State Department of Health has access to information throughout the State from its engineers assigned to specific regions. In addition, it may collect data pursuant to its authority: to have access to any premises if there is reason to believe that there is a violation of health laws (N.J.S.A. 26:1A-17); to conduct a sanitary survey (N.J.S.A. 26:1A-18); to require local health officers to furnish it with information (N.J.S.A. 26:1A-20); and to inspect any waters of the State (N.J.S.A. 58:12-2). Second, the State Highway Department may collect and develop data pursuant to its authority to construct and improve State highways (N.J.S.A. 27:7-11) and to approve plans for the construction and improvement of municipal and county State-aid roads (N.J.S.A. 27:9-1, 27:10-1). Third, the Agricultural Experiment Station collects and develops data pertaining to almost every aspect of water resources management. It may acquire data from agricultural agents who report to it (N.J.S.A. 4:16-23 et seq.) and from county mosquito extermination commissions which report to it annually (N.J.S.A. 26:9-12). Fourth, the Soil Conservation Committee can collect data from soil conservation districts which are required to report to it (N.J.S.A. 4:24-3). Fifth, the Department of Community Affairs is a clearing-house for data, some of which are useful for the making of water control decisions.

d. State-Federal Programs to Gather Hydrological Data.

Many of the most useful hydrological data are gathered by Federal and State agencies in cooperative programs.

The U.S. Weather Bureau and the U.S. Geological Survey, in cooperation with the State Division of Water Policy and Supply: measure precipitation; record outstanding storms of record; analyze storm characteristics and frequencies; collect annual flood damage data; establish river and flood forecasting systems; conduct research on rainfall, sedimentation, drainage basin characteristics and flood runoff; collect flood high water data; and generally develop information on floods.

The Army Corps of Engineers is authorized:

...to compile and disseminate information on floods and flood damages including the identification of areas subject to inundation by floods of various magnitudes and frequencies, and general criteria for guidance in the use of flood plain areas, and to provide engineering advice to local interests for their planning to ameliorate the flood-hazard (33 U.S.C.A. 709a).

Similar data collection programs can be undertaken in conjunction with the U.S. Geological Survey. One such program presently involves the Delaware River Basin Commission. It is to be noted

that the programs of the Corps and the Geological Survey do not insure the undertaking of comprehensive surveys in the State. For example, only several applications for such aid to the State from the Corps have been processed.

Related to the development of this kind of data is the authority of the Division of Water Policy and Supply to delineate flood plains and to mark flood high water thereon (N.J.S.A. 58:16A-50 et seq.). To date this authority has not produced a general program for a number of reasons, previously stated.⁸⁶ However, it must be noted that in 1966 the State began a pilot study to give effect to its authority in this area.

3. Maps and Photos.

a. Authority Pertaining to Maps and Photos.

Much of the data needed for sound decision-making must be in the form of maps and related aerial photos of large land areas. Provisions pertaining to mapping appear in legislation involving agencies on all governmental levels. Yet, an agency by agency survey revealed only partial coverage of the State, little uniformity of standards and scales of maps, and in many instances, inadequate mapping.

Municipalities. Mapping on the municipal level constitutes an important element in overall mapping programs. Data in great detail can be developed on this level.

One source of mapping information is provided in official map enabling legislation. A municipal governing body may by ordinance establish an official map which is deemed conclusive as to the location of widths of "drainage rights-of-way" (N.J.S.A. 42:55-1.32). There are limits to relying on this authority. In the first place, the definition of drainage rights-of-way is limited in scope and excludes natural storm water drainageways (N.J.S.A. 40:55-1.1). In the second place, official map legislation is permissive; it has been indicated that few municipalities have adequate official maps.⁸⁷

A second source of mapping information on the local level, and potentially a fruitful one, is tax maps. Each city, borough, village, and town (over 2,500 in population) is required to prepare such a map (N.J.S.A. 54:1-1.5). The Division of Taxation in the Department of the Treasury has specified that such maps should include: all rivers and streams and their proper names; the distance to the center of streams and creeks on non-navigable and non-tidal waters; ownership on navigable and non-navigable streams; the rights-of-way of all public utilities.⁸⁸ This legislation is limited to the extent that the delineation of natural and artificial drainageways other than rivers and streams is not required.

Furthermore, it has been indicated that these provisions have not always been effectively enforced.

Counties. Counties are logical units for the undertaking of mapping. Their statutory authority pertaining to mapping is quite limited.

County planning boards are authorized to include in master plans the location, character, and extent of waterways and waterfront developments (N.J.S.A. 40:27-2). However, there is no evidence that such has been done in a comprehensive and uniform manner in most counties. County official map legislation only enables the inclusion of facilities and works under county jurisdiction (N.J.S.A. 90:27-5).

Some counties do possess sets of aerial photos and maps, but these vary as to size, scale, quality and the degree of coverage within each county.

State. The Office of the State Geologist is the repository for maps of all kinds and from various sources. It has been indicated that these maps have not been wholly adequate for many kinds of technical decisions which must be made in connection with water control.

Similarly, while the divisions of State and Regional Planning and Water Policy and Supply have maps, their coverage and detail do not yield the kind of information needed for many decisions.

Federal. The topographical maps of the U.S. Geological Survey are the most important existing source of maps. Yet, it was found that in themselves, these maps are not adequate in aiding many drainage and flood control decisions.

b. Mapping Needs.

There is some question about the number, kind, and the detail of data needed on maps of the drainage areas of the State. It is clear, that in order to make sound water management decisions, data supplied by adequate maps are essential. On the other hand, interpreted drainage maps provided on a State-wide basis might not be useful for decisions in small drainage areas where there are few variables affecting drainage and where very detailed information concerning development and land cover is necessary. A study, recently completed, pertaining to Hillsborough Township, has produced useful information concerning the amount of detailed data required in conjunction with a comprehensive drainage plan.⁸⁹

At the same time, it has been indicated that drainage maps undertaken on a State-wide basis could provide useful data for a wide range of decisions not only pertaining to drainage,

flood control, mosquito control, and soil conservation, but also to industrial development, highway construction, water supply, recreation planning, agricultural development and community planning and zoning. In 1954 the College of Engineering at Rutgers University proposed a project for the preparation of drainage maps for the entire State. The cost of this project at that time was estimated to be \$250,000. In light of the discussion of mapping needs in the State, this proposal could provide the basis for a State-wide mapping program in the future.⁹⁰

There is no question that maps are needed providing comprehensive coverage and uniformity as to quality and scale.

4. Soils Surveys.

In conjunction with a mapping program providing useful data for water management decisions, data pertaining to soils are important. It is essential that the relationship between soils, drainage, and flood control is understood.

There are several authorizations and programs pertaining to the undertaking of soils surveys in the State. However, there is incomplete coverage. The U.S. Soil Conservation Service is conducting a National Cooperative Soils Survey in cooperation with the Agricultural Experiment Station and other agencies on a county-by-county basis. Evidence indicates that this program has made some progress in New Jersey. To date, this work is estimated to be 80 percent complete. All data should be available by the year 1972. In addition, a soils survey conducted at Rutgers University has been completed. Some coordination of existing data gathering programs may be called for, and there may be need for additional funds to accelerate the Federal program.

5. Watercourse Surveillance.

In order to exercise regulatory and operational authority, up-to-date data on the existence and condition of watercourses are needed. Various agencies on all governmental levels undertake programs which could provide useful data.

Municipalities. Data may be available from local boards of health in connection with sanitary inspections, from engineers in connection with their inspections, and from planning boards and governing bodies, pursuant to authorization for comprehensive plans and official maps.

Counties. Considerable data are available from mosquito extermination commissions, where they exist, in connection with surveys of mosquito breeding areas; from county engineers in connection with their authority to supervise and maintain roads, bridges, culverts, and other county facilities; from planning

boards pursuant to authority to formulate master plans; and from boards of chosen freeholders.

State. Data are available from: the Division of Water Policy and Supply pursuant to its authority to review applications for stream encroachments and to remove existing encroachments; the Division of Fish and Game, pursuant to its authority pertaining to the pollution of streams; the Department of Health pursuant to its authority to inspect any waters of the State; the Highway Department, pursuant to its authority to construct, improve and maintain roads, and to aid counties and municipalities; the Soil Conservation Committee in connection with the reports of soil conservation districts submitted to them; and the Agricultural Experiment Station pursuant to its supervision of mosquito control.

An agency survey indicates that there is, in fact, inadequate watercourse data in the State. Part of the problem involves the lack of primary responsibility to acquire such data and the lack of a clearinghouse. Second, the Bureau of Water Control of the Division of Water Policy and Supply which does have some responsibility in this area does not undertake a comprehensive stream surveillance program. The collection of data by the Bureau is limited to those derived from applications submitted to it for the construction of encroachments and from complaints from public agencies and private persons. The limits of the exercise of the Stream Encroachment Law (N.J.S.A. 58:1-26) have been noted.⁹¹ Recommendations by the Bureau to the Water Policy and Supply Council are, to some extent, based upon obsolete surveys.

6. Population, Economic and Land Use Data.

The adequacy of water control programs is dependent upon knowledge of existing and projections of future land use. Pertinent data are developed by agencies on all government levels.

Detailed information may be provided by municipal, county and regional planning boards. Yet, there is less than complete coverage by these agencies in the State and great disparities in the data developed by them.

Regional data can be developed by the Delaware River Basin Commission, other official regional agencies and some unofficial planning groups, study groups, and watershed associations. Again, coverage is incomplete and data developed vary.

On the State level the Division of State and Regional Planning, the Agricultural Experiment Station, and the Bureau of Commerce may provide useful data. Among these, the Division of State and Regional Planning serves as a clearinghouse for all types of data. At the same time, the Division lacks formal coordination authority in this area.

On the Federal level, the most fruitful sources of data come from the Bureau of the Census of the Department of Commerce and the Agricultural Census of the Department of Agriculture.

Few of these agencies cited are authorized to collect data specifically to provide for sound drainage and flood control decisions. A clearinghouse for such data could improve this situation.

7. An Evaluation of Data Collection and Development.

The foregoing survey has led to the following general conclusions:

- (1) There is much proliferation in the collection and development of data by public agencies on all governmental levels and by private agencies.
- (2) There is at the same time, an overlapping of data collection and development functions, and significant data gaps. There is insufficient coordination among the agencies cited.
- (3) While data are available from many sources which could be used in making sound decisions: there is need for an inventory of available, usable data. There is a need for the coordination of efforts in the collection and development of data pertaining to all aspects of water resources management. Consequently, there is a need for a clearinghouse agency and the encouragement of multi-purpose research.
- (4) There is a need for studies of entire watersheds or drainage basins on a continuing basis.
- (5) There is a need for more extensive mapping of the State's drainage areas, which is comprehensive and detailed, and undertaken according to uniformly high standards.
- (6) There is a need for sustained comprehensive soils surveys.
- (7) There is a need for comprehensive and up-to-date watercourse surveillance data.

Chapter II

FOOTNOTES

¹ Joint Committee on Drainage, Minutes of First Meeting, February 16, 1961; Seventh Meeting, February 20, 1962.

² Steven Dola, Flood Damage Alleviation in New Jersey, New Jersey Department of Conservation and Economic Development, Division of Water Policy and Supply, Water Resources Circular 3. Trenton, 1961, pp. 7,8.

³ Harold Ellis, R. O. Bausman, Some Legal Aspects of Water Use in Delaware, Agricultural Experiment Station, Newark, Delaware.

In New Jersey see, Mancini v. DeLillis 1 N.J. Super 491 (1856).

⁴ Earl v. Dehart 12 N.J. Eq. 280 (E. and A. 1856); Schnitzius v. Bailey 48 N.J. Eq. 409 (1891); Holsman v. Boiling Spring Bleaching Co. 14 N.J. Eq. 335 (1862).

⁵ Merritt v. Parker 1 N.J.L. 460 (1795); Holsman v. Boiling Spring Bleaching Co. 14 N.J. Eq. 335 (Ch. 1893); Borough of Westville v. Whitney Home Builders 40 N.J. Super. 62 (App. Div. 1956).

⁶ Murray Rubber Co. v. Trenton 103 N.J.L. 43 (1926).

⁷a. For negligence due to inadequate drains. Harrington v. Woodbridge 70 N.J.L. 28 (1903).

b. For negligence due to lack of skilled advice. Terre Haute v. Hudnut 112 Ind. 542.

c. For direct trespass by continuous casting of water upon another's property. Ashley v. City of Port Huron 35 Mich. 296.

d. For condemnation of property without just compensation if done pursuant to a statute. Belkus v. City of Brockton 184 N.E. 812.

e. For enjoynable nuisance. City of Lebanon v. Twiford 113 Ind. App. 384.

⁸ Kiddie Manufacturing Co. v. Bloomfield 20 N.J. 52 (1955).

⁹An owner of a dominant tenement must make reasonable inspections of the easement upon servient land and he must use due care to keep the easement in repair. Ingling v. Public Service Electric and Gas Co. 10 N.J. Super. 1 (1950).

¹⁰Carlos Drablos, Benjamin Jones, Illinois Highway and Agricultural Drainage Laws, University of Illinois Bulletin, Vol. 60, No. 46, January, 1963.

In New Jersey see McCullough v. Hartpense 141 N.J. Eq. 499 (1948); Nathanson v. Wagner 118 N.J. Eq. 390 (1935).

¹¹Earl v. DeHart 12 N.J. Eq. 280 (E and A, 1856); Fitzpatrick v. Gourley 104 N.J. Eq. 281 (Ch. 1929); Nathanson v. Wagner 118 N.J. Eq. 390 (Ch. 1935); Bolsky v. Speer 31 N.J.L. 351 (Sup. Ct. 1865); McCloskey v. Atlantic City R.R. Co. 70 N.J.L. 20 (Sup. Ct. 1904).

¹²20 N.J. 320 (1956).

¹³Ibid.

¹⁴See Gellentini v. J. and D. Inc. 176 A. 2d 515 (1962) wherein the court stated that there is no longer any special surface water law in New Jersey and that the disposition of such waters is governed by applicable tort rules.

¹⁵New Jersey State Constitution, Article 1, Section 1; Article 1, Section 20.

¹⁶State by McLean v. Lanza 27 N.J. 516 (1958).

¹⁷New Jersey State Constitution, Article 1, Section 20.

¹⁸New Jersey courts have indicated that the constitutional requirements of due process are satisfied if there be: authority for a taking; an ascertainment of compensation under legislative directions by an impartial tribunal; and a right afforded to property owners to present claims for adjudication before ordinary courts of justice. State of New Jersey v. Heppenheimer 54 N.J.L. 268 (1892).

¹⁹Vartelas Executor v. Water Resources Commission 146 Conn. 650 (Sup. Ct. Err. 1959).

²⁰Helena Rubinstein Inc. v. Charlines Cut Rate 132 N.J. Eq. 254 (1942); Paul v. Gloucester County 50 N.J.L. 585 (1888); Mansfield and Swett v. Town of West Orange 120 N.J.L. 145 (1938).

²¹State Bd. of Milk Control v. Newark Milk Co. 118 N.J. Eq. 504 (1935).

²²Reingold v. Harper 6 N.J. 182 (1951).

²³Visco v. City of Plainfield 136 N.J.L. 659 (1948).

²⁴Arnold v. Mundy 6 N.J.L. 1 (1829); City of Hoboken v. Pennsylvania Railroad 124 U.S. 656 (1887); Bailey v. Driscoll 19 N.J. 363 (1955); Borough of Island Heights v. Presbyterian Camps and Conferences Inc. 68 N.J. Super. 291 (1961).

²⁵New Jersey State Constitution, Article 8, Section 4.

New Jersey Department of Conservation and Economic Development, Bureau of Navigation, Riparian Rights. Trenton, 1955, p. 9.

²⁶See New Jersey Commission to Study Meadowlands Development, Final Report, Passim. (Meyner Commission)

²⁷U.S. Constitution, Article I, Section 8, Paragraph 3.

²⁸Pollard v. Hagan 3 How. 212 (1944); U.S. v. California 332 U.S. 19 (1947).

See Riparian Rights, op cit., pp. 5,6.

²⁹U.S. 83rd Congress, 1st session, Ch. 65, P.L. 31.

"Lands beneath the navigable waters" within the State were defined as follows:

- a. non-tidal waters that were navigable under laws of the U.S. at the time such State became a member of the Union, or acquired sovereignty over such lands and waters thereafter, up to the ordinary high-water mark as heretofore or hereafter modified by accretion, erosion and reliction;
- b. all lands permanently or periodically covered by tidal waters up to, but not above the line of mean high tide and seaward to a line three geographical miles distant from the coast line of each such state where in any case such boundary as it existed at the time in such State became a member of the Union, or as heretofore approved by Congress extends seaward beyond three geographical miles;
- c. all filled-in made or reclaimed lands which were formerly lands beneath navigable waters as hereinbefore defined.

³⁰Supra. p. 26.

³¹See, Appendix D.

³²For an example see, City of Summit v. Horton Corp. 70 N.J. Super. 529 (1961).

³³See, Loster v. Tidewater Co. 18 N.J. Eq. 54; In re Lower Chatham and Little Falls, 35 N.J.L. 497; In re Pequest River 39 N.J.L. 433, 41 N.J.L. 175, 42 N.J.L. 553; Kean v. Driggs Drainage Co. 45 N.J.L. 91; Benjamin v. Bogard Fly Meadow Co. 68 N.J.L. 197.

³⁴Such a stream clearance policy was found to exist in Bergen County and the provisions have been included in Appendix A.

³⁵Supra. pp. 36-37, 40-41.

³⁶See, Rutgers, The State University, Bureau of Government Research. "An Analysis of the Proposed Pennsauken Watershed Authority Act and a Recommended Alternative Approach." Unpublished Report to the New Jersey Commissioner of Health. February, 1965, pp. 6 to 8.

³⁷For the extent of such controls see pp. 86,87.

³⁸Counties are authorized to promulgate regulations to prevent the diversion of surface or other water on to county roads, however. See N.J.S.A. 27:16-30, 31 e.f.

³⁹From the General State Fund, N.J.S.A. 27:11-1 et seq. From bond issues, N.J.S.A. 29:11-7, and from Federal aid programs, N.J.S.A. 27:8-1 et seq., 23 U.S.C.A. 300 et seq. (A close study of these provisions will reveal some limits to their use.)

⁴⁰See, Seaver v. Hortshorn 6 N.J.L. 26, Ward v. Peck 99 N.J.L. 42 (1886).

⁴¹Supra. p. 38.

⁴²See Delaware River Basin Commission, Administrative Manual II, Rules of Practice and Procedure. Trenton, February, 1964.

⁴³U.S. Army Engineers Division, Water Resources Development by the U.S. Army Corps of Engineers in New Jersey, North Atlantic, January 1, 1963, pp. 1-58. Updated by the Philadelphia district Corps of Engineers, January 1, 1967.

⁴⁴Interview with Kenneth Danielson, Work Party Leader, U.S. Soil Conservation Service, New Brunswick, June 30, 1964.

⁴⁵Supra. p. 30.

⁴⁶Supra. p. 30.

⁴⁷N.J.S.A. 32:11D-36, 100.

⁴⁸See, New Jersey Department of Conservation and Economic Development, Division of State and Regional Planning, The Feasibility of Buying Conservation Easements on Open Land. Trenton, 1963.

⁴⁹Board of Health of Caldwell Township v. Shaw 113 N.J. Eq. 507.

⁵⁰Board of Health v. Heidt Ch. 19A. 318, Bowland v. N.Y. Stable Manure Co. 88 N.J. Eq. 168.

⁵¹Supra. pp. 28,33.

⁵²Supra. p. 35.

⁵³For the definition of navigable waters see 16 U.S.C.A. 796, 48 U.S.C.A. 411.

⁵⁴Supra. p. 34.

⁵⁵See, Information for Applicants for Construction or Alteration of Encroachments on Streams. Trenton, 1960, p. 11.

⁵⁶The interpretation of "natural and ordinary highwater mark on any stream" has been based on the following calculations.

<u>Drainage Area (sq. miles)</u>	<u>Av. Flood Recurrence Interval (Yrs.)</u>
0.5 or less.....	5
0.5 to 1.....	10
1 to 25.....	15
25 to 50.....	25
50 or larger.....	50

It should be noted however that the Division is authorized pursuant to another statute to delineate flood hazard areas including the designation of floodways necessary to preserve the flood carrying capacity of natural streams. (N.J.S.A. 58:16A-52). "Floodway" is defined as the channel of a natural stream and portions of the flood plain adjoining the channel, which are reasonably required to carry and discharge the flood water or flood-flow of any natural stream. (N.J.S.A. 58:16A-51). There is no evidence that except on the reaches of some major streams in the State that this authority has been exercised.

⁵⁷Supra. p. 28.

⁵⁸Delaware River Basin Commission op. cit. pp. 1 to 33.

⁵⁹Files of the Division of Water Policy and Supply, Department of Conservation and Economic Development, Trenton.

⁶⁰Francis C. Murphy, Regulating Flood-Plain Development, University of Chicago, Department of Geography Research, Paper Number 56. Chicago, 1958, p. 34.

⁶¹Supra. p.52.

⁶²New Jersey Department of Conservation and Economic Development, Division of State and Regional Planning, Municipal Planning Controls Survey, July, 1962. P.B.T. 20. Trenton, 1963, p. 2.

⁶³The best of the few plans that do exist appears in Appendix A.

⁶⁴New Jersey Department of Conservation and Economic Development, Division of State and Regional Planning, The Setting for Regional Planning in New Jersey. Trenton, 1961. passim.

⁶⁵Supra. footnote 34.

⁶⁶See in this connection, Report of State Advisory Committee on Sewage Disposal, March 1962. passim.

⁶⁷Supra. footnote 74.

⁶⁸Francis C. Murphy op. cit., p. 34.

⁶⁹Supra. footnote 71.

⁷⁰Supra. p. 32.

⁷¹Kozesnick v. Montgomery Twp. 24 N.J. 154 (1957).

⁷²Gruber v. Mayor and Twp. Committee of Raritan Twp. 39 N.J. 1 (1962).

⁷³Morris County Land Improvement Co. v. Parsippany-Troy Hills Twp. 40 N.J. 539 (Sup.Ct. 1963).

⁷⁴Thornton v. Village of Ridgewood 17 N.J.L. United Adv. Corp. v. Borough of Raritan 11 N.J. 144.

⁷⁵Pequannock Twp. v. DeWilde 21 N.J. Super 517. Fischer v. Bedminster Twp. 21 N.J. Super 81. Tomko v. Vissers 21 N.J.L. 226.

⁷⁶Zachring v. Long Beach Twp., Ocean County 56 N.J. Super. 26. Kozesnick v. Montgomery Twp. 24 N.J. 154.

⁷⁷U.S. Constitution, Amendment 14, Section 1. No State shall...deny to any person within its jurisdiction the equal protection of the laws.

- 78 Rockfield v. Chesterfield Twp. 23 N.J. 117.
- 79 Allison Dunham, "Flood Control via the Police Power".
107 University of Pennsylvania Law Review, p. 1098.
- 80 Harriet Holt Cooter, "To Stay Out of Floods". 50
National Civic Review, p. 534.
- 81 Francis C. Murphy op. cit. pp. 49, 50.
- 82 Ibid.
- 83 The original draft of this Legislation was far more adequate than the existing provisions. The draft appears in Appendix D.
- 84 Francis C. Murphy op. cit. pp. 97, 98 to 100.
- 85 Regional Planning Boards: Pinelands, Meadowlands, Lake Hopatcong, Planning Organizations: Joint Council of Municipal Planning Boards in Essex County; Passaic Valley Citizens Planning Association; Northern Valley Planning Association; Northwest Bergen Regional Planning Association; Pascack Valley Regional Planning Association; Tri-County Planning Association; Burlington, Camden and Gloucester counties; Raritan Valley Counties Planning Association. Interstate Groups: Delaware Valley Council; Metropolitan Regional Council; Metropolitan Council of Planning Officials; Regional Conference of Elected Officials; Regional Plan Association. Watershed Associations. League of Women Voters.
- 86 Supra. p. 99.
- 87 Supra. footnote 74.
- 88 New Jersey Department of the Treasury, Division of Taxation, Public Utility Tax Bureau.
- a. Revised Statutes Relating to Preparation of Tax Maps, March, 1964.
 - b. Tax Map Specifications, March, 1964.
 - c. Tax Map Suggested Standards, March, 1964.
- 89 Nathaniel Henry Wooding. "A Study Relating to The Development of a Drainage Plan for Hillsborough Township". Unpublished Dissertation for the degree of Masters of Science, School of Agriculture and Environmental Service, Rutgers, The State University, 1964.

⁹⁰Support for legislation in this connection was offered by: the Association of County Freeholders; many county freeholders and planning boards; the New Jersey Federation of Planning Officials; the County Engineers Association; the County Planners Association; the Stony Brook-Millstone Watershed Association; the New Jersey Mosquito Extermination Association.

Senate Joint Resolution 14, Supporting the mapping proposal, sponsored by Senators Lynch and Stout, was introduced in the Senate on February 17, 1958. On June 16 of 1958, it was recommitted to the Assembly Agriculture, Conservation and Economic Development Committee and died there.

See, Rutgers the State University of New Jersey, Engineering Drainage Maps of New Jersey, College of Engineering, New Brunswick: February, 1954 passim.; S.J.R. No. 14, State of New Jersey. Introduced April 22, 1957 by Senators Lynch and Stout.

⁹¹Supra. p. 73.

Chapter III

ADMINISTRATION OF WATER RESOURCES

A.

CRITERIA FOR APPRAISING ADMINISTRATIVE ADEQUACY

Thus far, a number of factors have been established. First, there are many agencies on all governmental levels whose programs involve directly or affect less directly water resources management. These agencies pursue different primary and secondary objectives, environmental, developmental and governmental. Some of these objectives actually and potentially conflict if maximized. The problem then is to establish mechanisms whereby they can be accommodated whenever possible. Other goals or objectives are not necessarily in conflict, but may conflict because techniques and programs designed to achieve them are uncoordinated. Again, the problem is to establish mechanisms whereby various programs or techniques may be coordinated.

Second, there are many laws and programs of implementation which pertain directly and indirectly to water resources management. Some of the problems associated with water control laws and programs were discussed in the last chapter. It is again necessary to consider them more broadly in relation to all aspects of water policy. It is not only necessary to enact adequate laws, but also to establish effective means of implementing them and assuring that they are exercised at appropriate times by appropriate agencies. Again, mechanisms are needed so that this can be done.

In this chapter there will be an examination of existing mechanisms for: (a) the accommodation of objectives and goals; and (b) the distribution of functions, powers and skills. Existing administrative mechanisms will be evaluated with reference to a number of criteria. While the selection of these criteria involved subjective judgments, they are useful categories for subsequent analysis.

1. Reasonable Congruity of Area and Function.

Areal considerations are important from the standpoint of the achievement of functional goals and the realization of democratic values.

- (a) Areas of jurisdiction should be broad enough for agencies to cope adequately with conditions which create problems to be alleviated.
- (b) Areas of jurisdiction should be such as to encompass a substantial population base and diversified financial resources.
- (c) Areas should be of such size as to comprehend technical competence and to permit taking advantage of economies of scale.
- (d) There should be options to facilitate flexibility to adjust functional boundaries as problems and conditions dictate.
- (e) Areas should be of such size as to enable the undertaking of programs of adequate scope and depth so as to make a substantial difference to people affected and to compel popular interest and participation.

2. Congruity of Functions to be Performed and Authority to Undertake their Performance.

Among those matters discussed in the last chapter was the measurement of adequacy in terms of legal authorizations and programs of implementation. From the administrative standpoint, additional factors must be considered.

- (a) Functions and associated powers should be distributed among public agencies on all levels in such a way as to balance the allocation of resources, to meet recognized needs and to be responsive to pertinent constituencies and clientele groups.
- (b) Agencies should have access to a variety of financial resources commensurate with their responsibilities. Economic burdens should be allocated on the basis of fiscal capacities and program responsibilities.
- (c) Economic burdens should be allocated among persons when appropriate, based upon benefits received, ability to pay and their contribution to the problems to be alleviated.

3. Administrative Integration and Coordination.

This report is premised upon the belief that organizational structure, in the broadest sense, does contribute to goal achievement. Integration and coordination can be measured in terms of formal and informal interactions, shared functions and interests and formal controls and powers.

The structure of public agencies has been evaluated with reference to the following categories:

- (a) The degree of integration within agencies: agencies should be internally integrated.
- (b) The degree of coordination within single governmental levels: there should be coordination of agencies on each governmental level.
- (c) The degree of coordination among governmental levels: there should be coordination of agencies among governmental levels.

4. Political Responsiveness, Accountability, Viability.

In connection with the preservation of democratic values, administrative adequacy has been evaluated in terms of:

- (a) the responsiveness of decision-makers to pertinent constituencies and clientele groups;
- (b) accountability in making and implementing decisions;
- (c) the scope of participation in the making of decisions and the ability of agencies to gain and to keep political support.

Again, it must be noted that these criteria may conflict if maximized. For the purposes of this chapter each criterion has been considered separately, and organizational mechanisms have been evaluated in terms of their conformity with each of them. In chapter four recommendations were designed to accommodate all of the criteria and to establish priorities among them when necessary.

B.
EXAMINATION OF
GOVERNMENT LEVELS

1. Municipal Level.

Even a cursory examination of municipalities reveals that they are endowed with the most extensive powers to deal with water problems, yet in many ways, they are inadequate and unwilling decision-making units.

a. Area and Function.

The principal inadequacy of municipal agencies as decision-making units is their limited areas of jurisdiction in comparison with the geographical scope of most water problems. It is obvious that few if any municipal boundaries encompass entire drainage areas or streams. (See Table 3-1). Furthermore, decision-making is fractionated on the municipal level among hundreds of agencies. Pertinent agencies within each municipality include:

- (a) 567 general governing bodies which vary greatly as to their integration, the scope of their powers, and their areas of jurisdiction;
- (b) local boards of health;
- (c) municipal engineers;
- (d) 485 planning boards which vary greatly in their powers and programs;¹
- (e) zoning boards of adjustment;
- (f) numerous sewerage authorities and districts;²
- (g) water and fire districts and commissions.

b. Powers and Programs.

At the same time, municipalities have been granted the most extensive operational and regulatory powers (although their financial flexibility is somewhat limited). Yet, often they have been unwilling to exercise their powers except in response to crisis situations. They have few incentives, and few technical and financial resources to undertake extensive programs.³

Table 3-1

Number of Municipalities and Counties Within the Major and
Secondary Drainage Basins of New Jersey

<u>Major and Secondary Drainage Basins*</u>	<u>No. of Municipalities**</u>	<u>No. of Counties**</u>
<u>Hackensack</u>	51	2+
<u>Passaic</u>	<u>90</u>	<u>7</u>
(1) Wanaque	5	1+ (Passaic)
(2) Pequannock	10	3
(3) Ramapo	7	2
(4) Saddle	25	1 (Bergen)
(5) Lower Passaic	40	3
(6) Upper Passaic	27	3
(7) Whippany	11	1 (Morris)
(8) Pompton	7	2
(9) Rockaway	17	1+ (Morris)
<u>Wallkill</u>	<u>12</u>	<u>1+ (Sussex)</u>
(10) Papakating	4	1 (Sussex)
(11) Wallkill	11	1 (Sussex)
(12) Pochuck	2	2
<u>Raritan</u>	<u>68</u>	<u>6+</u>
(13) South Branch Raritan	20	3
(14) North Branch Raritan	18	3
(15) Lower Raritan	27	3
(16) Millstone	23	4+
(17) Lawrence Brook	6	1 (Middlesex)
(18) South River	15	2

Table 3-1 (Continued)

<u>Major and Secondary Drainage Basins*</u>	<u>No. of Municipalities**</u>	<u>No. Of Counties**</u>
<u>Atlantic Coastal Basin</u>	<u>129</u>	<u>10+</u>
(19) Elizabeth	10	2
(20) Rahway	25	3
(21) Navesink	11	1 (Monmouth)
(22) Manasquan	10	2
(23) Matedeconk	9	2
(24) Toms River	15	1+ (Ocean)
(25) Cedar Creek	3	1 (Ocean)
(26) Mullica River	24	4
(27) Great Egg Harbor River	18	3
(28) Tuckahoe	9	3
(29) Absecon	5	1 (Atlantic)
Other Coastal	2	1 (Essex)
	5	1 (Union)
	15	2 (Middlesex, Monmouth)
	25	1 (Monmouth)
	3	1 (Ocean)
	8	2 (Ocean, Atlantic)
	6	1 (Atlantic)
	4	1 (Cape May)
<u>Delaware River Basin</u>	<u>171</u>	<u>15</u>
(30) Flat Brook	2	1 (Sussex)
(31) Paulins Kill	13	2
(32) Pequest	19	2
(33) Pohatcong	10	1 (Warren)
(34) Musconetcong	22	4
(35) Assunpink	12	2
(36) Crosswicks Creek	13	4
(37) Black's Creek	5	1+ (Burlington)
(38) Assiscunk Creek	8	1+ (Burlington)
(39) Rancocas Creek	29	3
(40) Pennsauken	8	2
(41) Cooper's Creek	12	1+ (Camden)
(42) Big Timber Creek	20	2
(43) Mantua	12	1 (Gloucester)
(44) Raccoon Creek	7	1 (Gloucester)
(45) Old Mans Creek	7	2
(46) Salem Creek	11	1 (Salem)
(47) Alloways Creek	6	1 (Salem)

Table 3-1 (Continued)

<u>Major and Secondary Drainage Basins*</u>	<u>No. of Municipalities**</u>	<u>No. of Counties**</u>
<u>Delaware River Basin (contd)</u>		
(48) <u>Cohansey Creek</u>	10	1+ (Cumberland)
Other River	5	2 (Sussex, Warren)
	5	1 (Warren)
	12	2 (Hunterdon, Mercer)
	7	2 (Mercer, Burlington)
	12	2 (Gloucester, Camden)
	6	1 (Gloucester)
	6	1 (Salem)
	5	2 (Cumberland, Salem)
	4	1 (Cumberland)
	5	2 (Cumberland, Cape May)

*Major drainage basins underlined; secondary drainage basins numbered.

**Approximate number derived from maps.

+Minor fraction of another county not included.

Source: New Jersey Department of Conservation and Economic Development. Maps of Major and Secondary Drainage Basins of New Jersey B10A-18 Trenton, April, 1963.

c. Administrative Organization.

While it is difficult to generalize about all municipalities, a number of propositions can be made about municipal government.

Intramunicipal Integration. Potentially, there can be a fair degree of administrative integration on the municipal level. This proposition holds true particularly where there are simplified, organizational structures, where there is a single executive head, where there are clear lines of responsibility and/or where there is some consensus as to ends and means. Where there is no central executive head, where decisions are made by committees or commissions and where there are significant community cleavages, integration may be more difficult to attain.

In connection with those officers and agencies with functions pertaining to water management, the chief executive and/or the principal governing body can exercise some controls. In most cases, the governing body or chief executive has the power to appoint and to remove members of planning boards (N.J.S.A. 40:55-1.4), to appoint municipal engineers and other officers (N.J.S.A. 40:46-6, 6.23), to specify appointments of boards of health (N.J.S.A. 26:3-5), and to create and to varying degrees control commissions, districts and authorities.

Intermunicipal Coordination. There is only a limited amount of intermunicipal coordination in New Jersey. Traditions of Home Rule and unequal development have led to much administrative separateness.

Enabling legislation authorizes intermunicipal cooperation and coordination in connection with water control. Generally, these were found to be inadequate or unused.⁴ In addition, it is to be noted that municipalities can perform jointly those functions which they are authorized to perform alone.⁵ Again, such an authorization is unlikely to be used when threats to "local sovereignty" and independence are perceived.

Such coordination or cooperation that exists is done to a large extent, informally or on an ad hoc basis. In addition, professional associations can provide, at a minimum, continuing communication among local officials and appointees (at the same time they may lead to further functional separateness). Otherwise, only when perceived self-interest dictates, is coordination effected.

d. Political Responsiveness, Accountability, Viability.

Ostensibly, municipalities are the most responsive governmental units and the most viable political entities.

Certainly, municipalities are the most viable political units. There are great symbolic attachments to local governments. Even considering the problems of growing dislocation, especially in cities and dormitory suburbs, municipal decisions are accorded greater legitimacy than those made by agencies without local orientations.

Local decisions are often responsive to local demands, and local officials being closest to their constituencies often are accountable for their actions. At the same time, municipalities are over-rated in terms of their democratic character. Intense local pressures may be dysfunctional in connection with administrative effectiveness. Citizenship apathy often is pervasive. Furthermore, decisions made by municipal agencies often affect others outside of their jurisdictions. Thus, in connection with water management, municipalities are neither responsive nor responsible to wider "functional" constituencies within entire drainage areas and beyond. Consequently, while municipalities have important roles to play in water programs, they must be brought within a larger decision-making framework.

2. County Level.

In a number of ways, counties are more adequate decision-making units than municipalities. At the same time, unless they can overcome existing weaknesses, they will not be able to play an effective role in the formulation and promulgation of water policies.

a. Area and Function.

The county level agencies are more logical decision-making units in connection with many water problems to the extent that their areas of jurisdiction are large enough to encompass entire drainage areas and many streams. In Table 3-1 it was indicated that at least 17 secondary drainage basins are within single counties and that 11 such basins are within two counties. Yet, most drainage areas transcend county boundaries. Consequently, while individual counties can deal with many water problems, means must be available to deal with intercounty problems.

At the same time, there is some proliferation of decision-making units on the county level. Among those agencies and officials which have authority in connection with various aspects of water policy: (a) there are 21 boards of freeholders of various sizes; (b) all counties have an engineer's office; (c) 20 counties have mosquito extermination commissions which vary in the scope of their programs;⁶ (d) there are 17 county planning boards with varying programs;⁷ (e) there are agricultural agents in most counties; (f) there are at least three county sewerage authorities;⁸ (g) 14 soil conservation districts have

jurisdiction over areas coterminous with entire counties.⁹ It was found that there is much variation among counties as to the number of agencies operating within them, their programs, and the functions they perform. If counties are to play a role in water programs, comprehensive coverage and uniformity among all counties must be accomplished. (See Table 3-2 for some of these variations.)

b. Powers and Programs.

County agencies have significant operational powers in connection with drainage, flood control and mosquito control.¹⁰ While, a number of agencies are authorized to command different sources of revenue¹¹ and possess various skills, financing of operations on the county level was found to be awkward and uncoordinated. Furthermore, there are wide discrepancies in the resources of each county. (See Table 3-2.)

Another great weakness is the lack of regulatory powers. Especially inadequate are county planning laws. Little regulation can be accomplished pursuant to master plans. Subdivision regulations have limited application to the control of many water problems. Official map legislation is weak. Most significantly, county governing bodies are constitutionally barred from exercising zoning powers.¹²

If counties are to play a significant role in water control programs, these weaknesses must be overcome.

c. Administrative Organization.

Intracounty Integration. Generally, county level governments are not well integrated. They are governed by boards of various sizes and lack chief executives and centralized decision-making and controls. This is a handicap in the effective administration of water programs.

An examination of formal provisions and programs have yielded mixed conclusions. On the one hand, boards of freeholders can control a number of county agencies. First, they have powers to appoint and some powers to remove officials: (a) they may appoint and remove engineers (N.J.S.A. 40:21-27, 59, 14:24-25); (b) they may appoint members of mosquito extermination commissions, except in second class counties (N.J.S.A. 26:9-13, 13.2); (c) they may appoint members of, but have few controls over the operations of county sewerage authorities (N.J.S.A. 40:36A-1, 40:14A-1). Second, there are some formal interagency ties. For example, freeholders and engineers are represented on some planning boards (N.J.S.A. 40:27-1). Third, freeholders possess some potential financial controls: (a) they determine the pay of county engineers and planners; (b) they may allocate funds for mosquito control (N.J.S.A. 26:9-10).

Table 3-2

Selected Financial Data for New Jersey Counties, 1964

Counties by Region	Net Valuation Taxable (In thousands)	County Tax Levy (In thousands)	Selected Expenditures				County and Municipal Debt	
			Planning and Development	Mosquito Extermination	County Roads	State Aid	County	Municipal
Northeast								
Bergen	6,925,457	20,793	82,878	385,618	2,478,986	573,400	0.56	1.02
Essex	5,099,530	41,338	68,199	313,397	1,364,138	337,180	0.95	1.44
Hudson	2,515,508	25,085	20,000	295,712	1,833,215	186,322	1.09	2.40
Morris	2,164,816	7,683	103,850	242,752	1,136,907	434,100	0.70	1.10
Passaic	2,632,403	12,550	36,460	163,792	1,019,728	308,780	0.44	1.50
Union	3,681,701	14,540		228,000	588,350	274,740	0.49	1.07
Northwest								
Hunterdon	425,281	1,682	30,743		307,738	299,420		1.68
Sussex	442,273	2,571	20,420	500	1,135,500	345,860		0.40
Warren	335,084	2,153	8,850	10,000	573,210	289,070	0.34	0.45
Central								
Mercer	1,423,412	8,607	44,980	127,360	495,397	315,740	0.78	1.57
Middlesex	2,940,569	14,331	108,475	159,315	1,074,559	409,120	0.60	1.74
Monmouth	2,174,724	9,640	77,827	98,165	1,708,266	507,580	0.40	1.98
Ocean	1,118,502	5,551	32,145	161,000	1,132,610	570,900	0.18	0.84
Somerset	1,090,435	3,961	74,254	49,104	436,049	303,860	0.33	1.19
Southwestern								
Burlington	1,035,362	4,321	42,775	68,582	708,545	542,036	0.31	0.95
Camden	1,734,634	12,901	80,810	65,290	1,299,507	119,403	0.66	1.45
Gloucester	676,937	2,906	15,000	53,496	599,012	385,100		0.85
Salem	320,817	1,947	12,000	40,000	325,000	356,682		1.69
Southeastern								
Atlantic	925,457	5,605		127,101	200,000	674,703	0.36	0.36
Cape May	592,670	2,826	69,950	154,502	411,803	273,548	0.30	0.30
Cumberland	420,900	2,700	70,415	45,500	347,800	511,649	0.44	0.44

(Source: New Jersey Dept. of the Treasury, Div. of Local Govt. Twenty-Seventh Annual Report, 1964, pp. xiii, C2 to 44) 80

On the other hand, there is a tendency toward administrative separateness on the county level. First, a number of officeholders or agencies look to the State for funds and administrative support. Some of the funds administered by the county engineer for road work are State-aid funds. Mosquito commissions look to the State Agricultural Experiment Station for administrative guidance and support and to the State Mosquito Extermination Commission and the Experiment Station for some operations funds (N.J.S.A. 26:9-12.6, 23,25). Agricultural agents are appointed and supervised by the State Agricultural Experiment Station and the Cooperative Extension Service (N.J.S.A. 4:16-23). Second, there is little evidence of any comprehensive plans or standards pertaining to water programs on the county level which might provide for some integration.¹³

Intercounty Coordination. Nor is there much evidence of effective coordination among counties.

Only a few statutory provisions permit coordinated exercise of powers across county lines; sewerage authorities, flood commissions, drainage districts, soil conservation districts and regional planning boards when created can exercise such powers to a limited extent.¹⁴

Informally, some ad hoc cooperative relationships exist. In addition, county engineers, mosquito commissions, planners, soil conservation supervisors and freeholders each have their professional associations which provide for communication across county lines.

Thus, when problems do not stop at county lines, and when it is desirable to adopt comprehensive programs according to uniform standards and subject to some central controls, county agencies alone are not adequate.

d. Political Responsiveness, Accountability, Viability.

Counties have some political failings as a middle governmental level. Until they are integrated to a greater extent, county agencies will lack the responsibility and the accountability required for effective democratic government. In addition, until they have the resources and greater powers, they will be limited in their capacity to respond to articulated demands and to meet recognized needs.

At the same time, they can be viable political units. First, because of their greater size and the fact that they encompass many drainage areas, they can be more responsive to the "functional" constituencies, than can municipalities. Second, there has been some consciousness among citizens of county governments and county political leaders for a number of reasons. Not only are county officers elected on the county level, but up to this time, State senators and political leaders have had county

bases. Furthermore, although symbolic attachments to counties are not great, they appear to be sufficiently strong to support governmental programs. County government is not so far removed from citizens and municipalities as to engender great resistance. Admittedly, there will be some local resistance to county programs and the exercise of their powers, but a number of county agencies can and do perform services for municipal units and have been sensitive to local problems.

Thus, in terms of areal, administrative and political criteria, it was concluded that counties should play an increasingly significant role in water programs, but they must undergo some modifications in order to do so.

3. Special Agencies

Numerous "special agencies" exist in the State, which have been or can be created pursuant to a variety of statutory provisions. They are designated as special agencies because they operate, in varying degrees, outside the framework of general governing bodies. They may take the form of dependent districts, special districts, or authorities.¹⁵ Some are coterminous with existing political jurisdictions; some are coterminous with clusters of existing jurisdictions; a few cut across parts of existing jurisdictions. There are agencies which are intermunicipal, intercounty and interstate. Some have been created on the State level pursuant to special legislation, others have been created locally pursuant to enabling legislation. (See Table 3-3.)

Generally, their existence attests to the weaknesses of existing general government agencies. In connection with the administration of water-related programs, their adequacy can be determined only by considering them together in terms of the distribution of functions, powers and resources among them. An examination of these agencies has found them to be inadequate decision-making units in a number of particulars.

a. Area and Function.

One justification for the creation of special agencies is that they can transcend the limitations of existing jurisdictional boundaries and exercise powers within wider functional areas. Since problems associated with water can be dealt with, most effectively in most cases, within entire drainage basins or areas, one measure of the adequacy of such agencies for administering water programs is their relationship to these natural areas.¹⁶ Of those agencies examined, only the Delaware River Basin Commission has jurisdiction over a major drainage basin within the State. While a number of special agencies have jurisdiction over wide areas, only some encompass entire drainage areas and there is no regular pattern in their coverage. Legislation

Table 3-3

Public Authorities, Non-School Special
Districts and Selected Special Agencies
in New Jersey*

<u>Public Authorities**</u>	<u>Number of Units</u>
Sewerage Authorities	
Single Municipalities	53
Intermunicipal	3
Regional	4
Municipal Parking Authorities	24
Municipal Utility Authorities	10
Municipal Incinerator Authorities	1
<u>Sewerage Joint Meetings, Districts**</u>	9
<u>Non-School Special Districts/</u>	
Municipalities with Districts	74
<u>Regional Planning Boards//</u>	3
<u>Soil Conservation Districts/*</u>	
Single-county	9
Multi-county	5
<u>Delaware River Basin Commission</u>	1
<u>Total Special Agencies Surveyed</u>	196

* State Authorities Not Included.

** Figures may be slightly inflated because they are derived from more than one source. Sources: Files of the Department of Health, 1965; New Jersey Division of Local Government, Department of the Treasury, Twenty-Sixth Annual Report, pp. X, XI, XII.

/ The number of districts within each municipality was not determined. Source: Twenty-Sixth Annual Report.

// Source: New Jersey Division of State and Regional Planning, 1965.

/* Source: Files of the New Jersey State Soil Conservation Committee, 1965.

pertaining to the creation of special agencies also was found to be deficient. An examination of statutory provisions dealing with the creation of special agencies has revealed that there are no requirements that these units encompass one or more drainage areas to perform water-related functions, nor are there any criteria as to their size, their location or their adequacy as administrative units. Furthermore, most of these agencies perform one or a few related functions; few can be considered multipurpose.

b. Administrative Organization.

A general observation pertaining to special agencies in the State is that there is an increasing proliferation of such agencies, which together represent a patchwork of administrative and governmental units superimposed upon the regular governmental structure. Often they are poorly integrated. They are poorly coordinated either with similar agencies, with other special agencies or with regular governing bodies. An intensive examination of a few pertinent special agencies will underscore this organizational fragmentation.

Drainage districts. The Drainage District Act of 1871 provides for the application of landowners to the Board of Managers of the Geological Survey for the formation of districts.¹⁷ The Drainage Act of 1916 provides that landowners may apply for the creation of such districts to the Division of Navigation of the Department of Conservation and Economic Development.¹⁸ More recent legislation pertaining to the formation of county drainage commissions, provides for the petition of landowners to the Superior Court for the formation of such districts.

The weaknesses of existing legislation are apparent. In no case are there criteria for the formation of these districts or the designation of their areas of jurisdiction. In no case are there adequate controls over these districts as to the exercise of their powers or their finances. There are few options available to permit individuals or existing jurisdictions to overcome the recalcitrance of those who are vital to the success of drainage projects but who do not wish to cooperate.

In 1956 a Joint Legislative Commission proposed legislation to update existing drainage district legislation. The elements of this proposal are included in Appendix E. The proposal would have improved upon existing legislation by providing some State controls, by providing for uniform financing procedures. However, it did not provide for mechanisms to control the formation of such agencies according to uniform criteria and some State-wide plan. The districts permitted pursuant to such legislation would have been single-purpose with limited powers and inflexible financial procedures. (Other objections to the legislation passed by the Legislature resulted in a veto by the Governor.)

Table 3-4

Size of Major and Secondary
Drainage Basins in New Jersey
in Square Miles*

<u>Major and Secondary Drainage Basins</u>	<u>Sq. Miles</u>	<u>Sq. Miles</u>
Hackensack		115.0
Passaic**		
Ramapo River	147.0	
Wanaque	94.0	
Pequannock	64.0	
Rockaway	119.0	
Upper Passaic (above Little Falls)	<u>349.0</u>	773.0
Raritan		
Lower Raritan Branches	29.0	
North Branch	191.6	
South Branch	276.5	
Millstone River	285.7	
Lawrence Brook	45.0	
South River	<u>52.0</u>	879.8
Wallkill/		
Pochuck	101.0	
Wallkill	<u>132.0</u>	233.0
Delaware River Basin		
Flat Brook	62.8	
Paulins Kill	125.0	
Pequest River	147.1	
Pohatcong Creek	8.0	
Musconetcong River	122.5	
Assanpink Creek	17.0	
Crosswicks Creek	139.2	
Black's Creek	22.0	
Assiscunk Creek	40.0	
Rancocas Creek	248.0	
Pennsauken Creek	24.0	
Coopers Creek	11.7	
Big Timber Creek	23.0	
Mantua Creek	13.0	
Raccoon Creek	0	
Old Mans Creek	10.0	
Salem Creek	22.6	
Alloways Creek	21.9	
Cohansey Creek	45.8	
Maurice River	<u>218.4</u>	1,322.0
Atlantic Coast Basin		
Elizabeth River	17.0	
Rahway River	41.0	
Navesink	0	
Manasquan	64.7	
Metedeconk	72.7	

Table 3-4 (Continued)

<u>Major and Secondary Drainage Basins</u>	<u>Sq. Miles</u>	<u>Sq. Miles</u>
Atlantic Coast Basin (Continued)		
Toms River	163.8	
Cedar Creek	55.8	
Forked River	14.7	
Mill Creek	19.7	
Westedunk Creek	21.0	
Tuckerton Creek	11.9	
Mullica River	402.0	
Great Egg Harbor River	215.8	
Absecon Creek	12.0	
Patcong Creek	19.0	
Tuckahoe River	60.2	<u>1,191.3</u>
Square Miles All Basins		4,514.1

* Data are not complete and do not include some portions of State.

** Does not include Saddle, Lower Passaic, Whippany and Pompton Basins.

/ Does not include Papakating Basin.

(Source: Report of State Advisory Committee on Sewage Disposal
op. cit., pp. 26, 27.)

Table 3-5

Selected
Regional Special Agencies As
Compared to Drainage Basins
and Counties

Selected Regional Special Agencies	Secondary Drainage Basins			<u>Counties</u>
	Whole	Major Part	Minor Part	
<u>Soil Conservation Districts</u>				
Sussex	3	4	2	1
Warren	1	3	1	1
Hunterdon		3	1	1
Morris	2	4	2	1
Burlington	4	2	1	1
Ocean	1	2	3	1
Camden	1	1	3	1
Gloucester	2	2	1	1
Mercer		2		1
Northeast	4	5		3
Freehold	4	4	4	2
Salem-Cumberland	3	2	2	2
Cape-May-Atlantic	2	3	1	2
<u>Regional Planning Boards</u>				
Lake Hopatcong			2	
Meadowland			1	
Pinelands	5	3	1	
<u>Sewerage Authorities, Meetings</u>				
Passaic Valley	8			6
Bergen County	1	2	1	1
N.W. Bergen County	1			(Fraction)
Middlesex	1	2	2	1
Ewing-Lawrence			1	1
Linden-Roselle		1		1
Rahway Valley	1			3
Somerset-Raritan		1		2
Weehawken-Union City			1	1

(Source: Calculated from New Jersey Department of Conservation and Economic Development, Map: Major and Secondary Drainage Basins in New Jersey. Trenton, 1963.)

Flood Commissions. These commissions may be created by more than one municipality.¹⁹ Their creation and their continued effectiveness are dependent upon the desires and continuing support of participant municipalities. There are no provisions for control over their creation or the exercise of their powers, with reference to uniform criteria and area-wide plans.

Sewerage Districts and Authorities. These special agencies may be created to construct and operate sewerage and sewage disposal facilities.

The controls over the formation of these agencies are varied. First, in connection with enabling legislation there are inadequate provisions requiring the supervision by a government agency with wide jurisdiction according to some uniform standards or criteria. Only insofar as the State Department of Health is authorized to approve the formation of intermunicipal sewerage districts and to define their areas of jurisdiction is some control possible on the State level.²⁰ Similarly, while county and municipal governing bodies are authorized to supervise the formation of sewerage authorities, there are no criteria specified as to their size and location.²¹ Second, the creation of sewerage agencies by the State legislature pursuant to special legislation does not provide the coordination and coverage needed, unless there are some uniform criteria governing separate enactments.²²

There is even less control over the exercise of the powers of sewer districts. The Department of Health has been authorized to regulate the construction of sewer systems and treatment plants.²³ However, this control has extended only to engineering standards established by the Department. There are few standards or authorizations to regulate the construction of sewerage systems and sewage treatment systems so that they make planning sense for whole drainage areas.²⁴ In no case do these controls extend to the construction of storm sewers.

One possible means of imposing regulation involves the administration of some Federal aid funds to local communities. Pursuant to programs of the U.S. Public Health Service, aid to the State and local agencies may be granted on the condition of the establishment of and compliance with a plan or some comprehensive program (33 U.S.C.A. 466c, 4663, N.J.S.A. 52:27C-28). Similarly, in connection with aid granted for the planning of public works projects pursuant to section 702 of the Federal Housing Act administered by the U.S. Housing and Home Finance Agency and the State Division of State and Regional Planning, conditions may be imposed upon aid recipients (*Ibid.*). However, at best, such conditions pertain to only some sewerage and sewage treatment projects in the State. They do not accomplish overall and continuing controls.

Regional Planning Boards. These boards are not effectively organized within the State.

First, there is inadequate supervision of their formation. No State agency is required to approve their formation or to delineate their areas of jurisdiction according to some uniform standards.

Second, there is little control over the kinds of powers which they exercise or the actual exercise of such powers. The scope of their master plans are not delineated. They differ as to their powers and finances. The assignment of powers to them is dependent upon the wishes of participating municipalities and counties. Those regional planning boards which do exist are responses to specialized problems.

Soil conservation districts. To an extent, there are some controls over these districts at the State level. The State Soil Conservation Committee did supervise their formation. At the same time, after their formation, the Committee may exercise only minimal supervision and control.

While the Association of Soil Conservation District Supervisors does provide a mechanism for program coordination among soil conservation districts, these units do not always coordinate their programs and activities with other special agencies and regular governing agencies.

The Delaware River Basin Commission. The Commission has been granted significant powers to integrate its planning, data gathering, operational and regulatory functions within a single agency and within a single major drainage basin. In addition, under certain circumstances, it is authorized to exercise jointly, the sovereign powers of the four signatory states,²⁵ and to coordinate the activities of persons and public agencies within the basin. Thus, it can serve as a model for a special agency: multipurpose, integrating a number of functions, exercising ample powers, coordinating activities of persons and agencies within a single hydrological area according to comprehensive plans and standards.

At the same time, its position outside the framework of State and local government and the limitation of its area of jurisdiction does present a governmental problem in the formulation of a comprehensive water policy for the entire State.

c. Powers and Programs.

In general, the powers which may be exercised by special agencies are not extensive.

First, most of them are single-purpose agencies or have a limited range of purposes. Of the special agencies examined, only soil conservation districts and the Delaware River Basin Commission could qualify as multipurpose agencies in connection with water resources management.

Second, few agencies are granted a full range of powers including data collection, planning, the undertaking of operations and the formulation and enforcement of standards. Only the Delaware River Basin Commission was found to have been granted a full range of such powers. Effective special agencies should be able both to undertake operations and to formulate and enforce plans and standards.

Third, special agencies generally, are characterized by financial inflexibility. Some special agencies such as drainage districts rely on assessments of benefited property owners after projects have been completed.²⁶ Other special agencies, such as sewerage authorities, rely on revenues from bond issues to finance their undertakings. It was found that the proliferation of such agencies using this financing device has tended to limit the flexibility of all governing units.²⁷ Some special agencies must rely on allocations from creating or parent governments or upon federal aid or local contributions. In no case are major regional agencies authorized to impose taxes. In no case has there been an attempt to give regional agencies a variety of financial tools to allow for sound fiscal programming. In few cases have there been attempts to place special agencies into the framework of State and local financing.

d. Political Responsiveness, Responsibility, Viability.

At present, special agencies have significant deficiencies as democratic, political units. First, they are created outside the regular governmental structure in response to special problems. In general, they either do not have great initial political support or can not maintain such support as they were accorded initially. There is little regional consciousness, a strong tradition of local Home Rule and resistance among those existing officials and agencies to encroachments of special agencies.

Second, special agencies often are not politically responsible or accountable units. To an extent those which resemble special districts are directly accountable for their actions. They are created and exercise some of their powers pursuant to referenda, and their officers are elected by constituents who are affected by their decisions. Yet, the proliferation of such districts results in the increase of referenda votes, long local ballots, and little voter interest and turnout.

To the extent that public authorities are financed by the issuance of bonds, their first responsibility is to bondholders many of whom do not live in the authority district. To the extent that special agencies are created and/or their officers are appointed by officials of governing units with wide jurisdiction, these agencies are removed from accountability to the residents of the areas within which the pertinent functions are performed.²⁸

Table 3-6Special Districts Taxes Levied,
Authority Debt in New Jersey, 1964Special District Taxes Levied

Garbage	\$ 788,371.32
Fire	2,588,681.88
Sewer	44,467.50
Light	106,426.96
Water	<u>10,100.00</u>
Total Special District Taxes	\$ <u>3,538,047.66</u>

Authority Debt

Sewerage Authorities	
Single Municipality	\$92,138,000.00
Intermunicipal	19,852,000.00
Regional	71,776,000.00
Municipal Parking	16,464,754.00
Municipal Utilities	27,889,000.00
Municipal Incinerator	<u>2,645,000.00</u>
Total Authority Debt	\$ <u>222,764,754.00</u>

(Source: New Jersey Department of the Treasury, Division of Local Government. Twenty-Seventh Annual Report, 1964, pp. x, xi, xxii, xxiii.)

At the same time, to the extent that special agencies are coterminous with or encompass entire drainage areas potentially they can represent "functional constituencies" more effectively than can existing political jurisdictions. Both the cause of and the solution to water problems are regional in scope. The interests of those affected by such problems can be represented better by governmental units with jurisdictions coterminous with the scope of these problems.

e. A Critique of Special Agencies.

An examination of special agencies in this and in other States has resulted in a cautious attitude concerning their use.²⁹

First, the extensive and uncontrolled use of such agencies superimposed on existing governmental agencies has resulted in a fractionating of governmental decision-making. The proliferation of decision-making may hinder the orderly development and sound utilization of resources. Overlapping of jurisdictions may result in a duplication of efforts and decrease overall government efficiency. The proliferation of limited purpose agencies may limit the flexibility of general purpose governments in dealing with their problems. The use of special agencies results in government by specialists rather than generalists who must consider a wide range of factors in making decisions.

Second, reliance on bond financing by many special agencies decreases the flexibility of both special and general purpose governments.³⁰

Third, special agencies which do not balance their representation of the various constituencies to which they relate, which are not politically or administratively accountable for their decisions and which are not viable political units, do not meet democratic criteria of adequacy.

4. State Level.

It is obvious that agencies on the State level do and must continue to play a principal role in the administration of water-resource programs. There are in existence today, many effective State programs. To an extent, there is administrative integration and some interagency coordination on the State level. However, in general, there are no effective coordinating mechanisms to bring together the many inter-related elements of various programs. Part of the problem is in administrative organization, part is in the inadequacy of regulatory and especially operational powers, and part of the problem is in the chronic lack of sufficient public funds.

a. Area and Function.

There are many agencies on the State level which have programs directly or indirectly involving water resources management. In Table 3-7 it is indicated that at least five operating departments have primary responsibilities in this area; other agencies included therein have responsibilities of varying importance, but were not evaluated intensively in this report. Within their functional areas of competence and authority, these agencies studied have State-wide jurisdiction.

Functional Administrative Areas. Although no complete survey was made, it was found that some agencies have divided the State into functional administrative areas which has resulted in a patchwork of overlapping areas with similar, conflicting or complementary functional responsibilities. (a) The Division of Fish and Game has assigned responsibilities to conservation officers within special administrative areas. (b) The Department of Health has assigned responsibilities to engineers within areas corresponding to drainage basins. (c) The State Soil Conservation Committee supervises soil conservation districts which are coterminous with single counties or clusters of counties. (d) The Agricultural Experiment Station supervises agricultural agents and mosquito commissions with county-wide jurisdiction.

While these administrative areas are logical in terms of the performance of the functions of these agencies, they do not provide a basis for the administration of comprehensive water resources management within broad functional regions.

Interstate Jurisdiction. Furthermore, only the Delaware River Basin Commission and the Interstate Sanitation Commission, created by special legislation, have the power to tackle interstate problems on rivers and bays which surround the State, problems involving water pollution, navigation, water supply and flood control. It must be noted that the State is not an adequate administrative area alone, in the alleviation of increasing interstate problems.

b. Administrative Organization

In connection with the evaluation of administrative organization on the State level, the task is two-fold: first, it is to assess the degree of integration within the major State departments examined; second it is to examine the degree of interdepartmental coordination on the State level.

Intradepartmental Integration. An examination of the five major departments primarily involved in water programs has yielded a number of general findings. First, in only a few cases, lack of administrative integration can be attributed to formal

Table 3-7

State Agencies With Primary
and Secondary Water Resources
Management Functions*

<u>Primary Functions</u>	<u>Secondary Functions</u>
<u>Department of Conservation and Economic Development</u>	<u>Department of Conservation and Economic Development</u>
Div. Water Policy and Supply	Green Acres Unit
Water Policy and Supply Council	
Div. Fish and Game	
Fish and Game Council	
Div. Shell Fisheries	
Div. Resource Development	Div. Resource Development
Resource Development Council	Bureau of Parks and Recreation
Bureau of Navigation	Bureau of Geology
State Mosquito Extermination Commission	
<u>Department of Health</u>	<u>Department of Law and Public Safety</u>
Pollution Control Unit	Attorney General's Office
General Sanitation Unit	
<u>Department of Agriculture</u>	<u>Department of Public Utilities</u>
Soil Conservation Committee	Div. Engineering
	Div. Rates and Research
<u>Department of Education</u>	<u>Department of the Community Affairs</u>
Agricultural Experiment Station	Div. State & Regional Planning
Cooperative Extension Service	Div. Local Government
	Div. Budgeting and Accounting
	Div. Taxation
<u>Highway Department</u>	<u>Rutgers, The State University</u>
Office of Drainage Engineer	
	<u>Department of Defense</u>
	Div. Civil Defense and Disaster Control

* Primary and Secondary functions definition derived from statements made by officials in personal interviews or from literature distributed by agencies as to their main missions.

organization. Second, while in a formal sense, the State government is modern, and well integrated, in practice there are numerous disintegrative factors.

(1)

Department of Conservation and Economic Development

There are numerous integrative factors within the Department. One such factor is the comprehensiveness of the objectives and functions of agencies with programs involving or affecting water resources, including: the divisions of Water Policy and Supply, State and Regional Planning, Fish and Game, Shell Fisheries; within the Division of Resource Development, the Bureaus of Parks and Recreation, Commerce, Navigation and Geology; the Green Acres unit; and the State Mosquito Extermination Commission.

Cumulatively, these agencies pursue comprehensive inter-related objectives which potentially can be accommodated. The Division of Water Policy and Supply especially, in acting on the allocation of ground and surface water, on equity questions involving the construction on streams, by delineating flood hazard areas, and by developing water supplies, may integrate the spectrum of water resources functions.

A second potentially integrative factor is the authority of the commissioner to exercise control over the agencies of the Department. He is authorized to supervise and direct the divisions of Resource Development, Fish and Game, Shell Fisheries, Water Policy and Supply, State and Regional Planning (N.J.S.A. 13:1B-8,28,43,48,15.51). He is authorized to approve the policies of the Resource Development Council, the Fish and Game Council and the policies and actions of the Water Policy and Supply Council (N.J.S.A. 13:1B-11,12,28,50,51). He may control the policies of acquiring lands by agencies within the Department pursuant to authority: to supervise and approve actions of the Bureau of Parks and Recreation and to approve the rules, regulations and standards established by the Bureau for the acquisition and maintenance of lands under its administration (N.J.S.A. 13:1B-15.1, 15.6); and to establish and administer the Green Acres programs (N.J.S.A. 13:8A-1 et seq.). However, it must be noted that these are formal powers. Much depends upon the actual leadership of the Commissioner.

Furthermore, informal mechanisms, such as departmental committees, can perform integrative functions. Yet, while such mechanisms as interagency committees provide a basis for coordination, difficulties have been encountered within them in accommodating objectives of different agencies.

This leads to a discussion of disintegrative factors within the Department which mitigate against an accommodation of interests. In the first place, the very comprehensiveness of objectives within the Department which have been cited as a source of integration is a source of departmental cleavage. Basic conflicts of objectives occur between those agencies which seek to dispose of surface water, such as the Division of Water Policy and Supply and the Mosquito Extermination Commission, and those which seek to retain and protect water for various uses, such as the Divisions of Fish and Game and Shell Fisheries. Another example involves potential conflicts between the conservation objectives and economic development objectives of the Department. In addition, agencies conflict even when they have similar objectives if they have overlapping functions and powers. One such conflict involves the Division of Water Policy and Supply and the Bureau of Navigation which share powers to regulate channel encroachments.

A second disintegrative factor involves relationships between limited purpose agencies and clientele groups. The existence of specialized agencies and the councils attached to them wielding regulatory powers, sensitizes the Department to narrow demands. From a representative standpoint, these agencies and their councils do afford sufficient access points to decision-making processes. At the same time, they result in the proliferation of decision-making and in differential responses to specialized interests. Clearly, there must be some accommodation of administrative and democratic criteria so as to assure that segmental interests neither dominate in decision-making, nor are neglected.³¹

A third disintegrative force involves the varied sources of public funds supporting departmental programs as well as the paucity of State funds. To an extent the Department consists of previously autonomous agencies which historically received their funds from different sources. Increasingly, the Federal government provides separate sources of funds and administrative support. Exacerbating this situation is the lack of public funds from a central State source administered by the Commissioner, which weakens his potential administrative leadership.

Evaluating the integrating the disintegrating factors together there are several implications for departmental organization. First the Commissioner has the potential to coordinate the various agencies with programs involving or affecting water resources. Organizationally, he can wield adequate controls over the activities of all agencies with the exception of the State Mosquito Extermination Commission which is "in" but not "of" the Department. This Commission, however, does not play a very active role in mosquito control, with major functions in this connection being performed in the Agricultural Experiment Station. The problem in the Department is that the Commissioner does not have access to comprehensive water resources plans and standards to which to refer, so that he may exercise effective leadership. Second, there is some question as to the allocation of functions

and powers in the Department with regard to water resources management. There is no single point in the decision-making apparatus where coordination of pertinent agencies can be accomplished effectively. Functions involving or affecting water resources are dispersed among a number of agencies. The Resource Development Council and the Bureau of Navigation in the Division of Resource Development particularly, perform functions pertaining to the facilitation and development of navigation, port development and the administration of riparian rights which are logically related to those of the Division of Water Policy and Supply. The Divisions of Fish and Game and Shell Fisheries and the State Mosquito Extermination Commission are affected by decisions and in turn affect decisions made by the Division of Water Policy and Supply and the Resource Development Council. The Bureau of Parks and Recreation and the Green Acres unit have functions pertinent to water resources management. Thus, some rethinking might be done to coordinate all water resource functions within the Department, possibly by regrouping agencies and allocating functions.

(2)

Department of Health

Agencies within this Department pursue comprehensive objectives pertaining to: (a) the control of conditions of stagnant surface water when they constitute a problem for public health; (b) excessive water tables and other conditions of excess water as they relate to sanitary facilities and threaten to cause unsanitary conditions; (c) the pollution of ground and surface waters; (d) the potability of water supplies. Essentially, these objectives and attending programs are highly integrated with other objectives and programs of the Department. The Public Health Council, and particularly the Bureau of Stream Pollution Control and the potable water unit, all perform functions which involve water resources management, yet are logically part of the total health program.

Furthermore, the Commissioner of Health is in a position to exert leadership and control. He is authorized to appoint the directors of divisions of the Department, to appoint other departmental personnel and to abolish their positions (N.J.S.A. 26:1A-13, 14). The directors of each division must report to the Commissioner and submit recommendations to him when the approval of the Department is required (N.J.S.A. 26:1A-32).

At the same time, there is some evidence that the divisions and the agencies within the Department are isolated in the performance of their functions and that the channels of communication can become impeded.

(3)

Highway Department

In connection with the construction and protection of State and State-aid roads, the objectives of the Department are to collect and dispose surface water, to control channel flows, and surface water runoff and to control soil erosion.

Drainage is the responsibility of the drainage engineer. The office is logically a part of the Department and is adequately integrated with the office of the Commissioner and is under his direct supervision and control (N.J.S.A. 27:1-8).

(4)

Agricultural Agencies

The agencies designated "agricultural" are loosely organized and not always closely related to the other programs of their respective departments.

The Department of Agriculture is involved in water control, conservation and development through its regular divisions, and largely through the Soil Conservation Committee which is located within the Department. The administrative control of the Department is not as much within the hands of the Secretary as in the Board of Agriculture which is composed of representatives of various agricultural commodities. Candidates for Board members are selected by an annual convention of delegates from various agricultural associations and recommended to the Governor who makes the final appointment (N.J.S.A. 4:1-2,4,4.1,5). It is the Board that selects the Secretary of Agriculture, subject to the approval of the Governor (N.J.S.A. 4:1-12,13). Thus, there are centrifugal forces within the Department. Furthermore, while the Soil Conservation Committee is within the Department, the Department has limited controls over its operations, even though the Department does provide funds for the operations of the Committee and the Secretary is a member of the Committee. Many of its functions are related to agriculture, yet its concerns extend to other aspects of soils management, flood control, and drainage.

Within the Department of Education, the Agricultural Experiment Station is involved in almost every aspect of surface water management in a research and study capacity: drainage and flood control; mosquito extermination; pollution control; the conservation and development of water resources; and the preservation of recreational resources. In addition, it supervises and, to an extent, controls county mosquito extermination commissions (N.J.S.A. 26:9-1 et seq.), county agricultural agents (N.J.S.A. 4:6-23), and the Cooperative Extension Service (N.J.S.A. 4:16-22,23).

In performing these functions, the Station is not an integral part of the Department of Education. The Board of the Station is not chosen by the Commissioner of the Department, but by the Trustees of Rutgers University (N.J.S.A. 18:22-15.5). Its financial resources come directly from the general fund of the State and are allocated by the State University (N.J.S.A. 4:16-8, 28, 18:22-15.6,47). Recently, some of its funds for research have been donated by private industry.

To an extent, there is logic in the location of the Station in the Department of Education; research constitutes a major function of the Station. Direct access to the facilities of the State University is an advantage in the performance of such duties. Yet, in the exercise of its supervision over mosquito control, the logic of its departmental location is not so clear. This somewhat illogical connection appears to have been recognized by the Legislature when it decided to create the State Mosquito Extermination Commission in the Department of Conservation and Economic Development rather than to appropriate large sums of money for mosquito control purposes and allocate them to the Department of Education.

Intradepartmental Integration: A Summation. In summary, a number of findings have emerged. First, agencies in at least five major departments perform one or more pertinent functions which both are related to other programs within their respective departments and to water resources management generally. Second, in all departments except Agriculture and Education there is at least formal administrative integration. Third, even in those departments with formal integrative potentials, there are numerous disintegrative factors. Fourth, the logic of the existence of certain agencies and programs within existing departments is clear except in the case of the Agriculture Experiment Station in the Department of Education and to a lesser extent, the Soil Conservation Committee in the Department of Agriculture.

Interdepartmental Coordination. The agencies with primary and secondary involvement in water resources management have been listed. A major conclusion of this report is that there is a need for some mechanism whereby pertinent agencies and programs in all departments can be coordinated, for a number of reasons. First, there are parallel and overlapping functions and objectives pursued by many agencies by means of different techniques. For example, programs of the Departments of Health and Conservation and Economic Development, Agriculture and the Agricultural Experiment Station overlap particularly. The programs of the Highway Department affect the programs of all of these agencies. Second, there are many potential conflicts among the goals pursued by State-level agencies.

In assessing existing interdepartmental coordinating mechanisms, it is necessary to distinguish between those formal interactions which represent potential coordination and those interactions which comprise actual coordination.

Table 3-8
Potential Conflicts Among
State Agencies Involved in Water
Resources Management

	DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT	Div. Water Policy and Supply	Bur. Water Control	Bur. Water Resources	Div. Fish and Game	Div. Shell Fisheries	Div. Resource Development	Bur. Navigation	Bur. Commerce	State Mosquito Exterm. Comm.	DEPARTMENT OF HEALTH	DEPARTMENT OF AGRICULTURE	Soil Conservation Committee	AGRICULTURAL EXPERIMENT STA.	HIGHWAY DEPARTMENT
DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT															
Div. Water Policy and Supply					X		X	X							X
Bur. Water Control			X												
Bur. Water Resources			X												
Div. Fish and Game		X				X			X	X	X	X	X	X	X
Div. Shell Fisheries		X				X	X								X
Div. Resource Development		X		X	X				X						X
Bur. Navigation			X					X							X
Bur. Commerce		X					X		X	X	X				
State Mosquito Exterm. Comm.			X	X				X			X	X	X	X	X
DEPARTMENT OF HEALTH		X	X	X	X		X	X	X	X			X	X	X
DEPARTMENT OF AGRICULTURE		X		X					X	X					X
Soil Conservation Committee		X		X					X	X					X
AGRICULTURAL EXPERIMENT STA.		X		X							X				X
HIGHWAY DEPARTMENT		X	X	X	X	X	X	X	X	X	X	X			

(1)

Formal Interdepartmental Ties

One formal means of interdepartmental coordination is the relationship of agencies or officials to the Governor. Most of the agencies examined are directly under his control and supervision. Those departmental officials appointed directly by the Governor include: the Commissioner of Conservation and Economic Developments and some of the division heads in his department (N. J. S. A. 13:1B-2,8,10,24,43,44,48,49); the Commissioner of Health (N. J. S. A. 26:1A-3,75,15); and the Commissioner of Highways (N. J. S. A. 27:1-3). The Governor has less direct control over the appointment of the Secretary of Agriculture who is appointed by the Board of Agriculture; however, the Governor must approve the appointment of the Secretary (N. J. S. A. 4:1-13) and may remove the elected members of the Board for cause (N. J. S. A. 4:1-4.1). Similarly, the Governor has less direct control over the State Agricultural Experiment Station whose Board of Managers is appointed by the Trustees of the State University (N. J. S. A. 18:22-15.5).

Alone, however, the lines of responsibility to the Governor are not adequate measures of coordination. First, gubernatorial leadership is impeded unless there is a comprehensive program developed within which the elements of various programs can be fitted. No such program or guidelines have been developed in New Jersey. Second, when public funds are deficient on the State level and funds are available from other sources, ties to the Governor are loosened. State agencies seek support from the Federal Government or may become dependent on the support of interest or areal groups. For example, many agencies administer various Federal funds according to Federal requirements. The State Highway Department especially, is independent in undertaking its programs. A substantial proportion of its funds are from Federal sources, and it receives administrative support from the U.S. Bureau of Roads.³² Third, the Governor in New Jersey operates within a competitive political environment which exerts centrifugal forces upon his administration, his choice of administrative officers and the amount of leadership that he may exert.

Few other formal interagency ties exist which provide a basis for the coordination of the various elements of water resource programs. One type of formal interagency tie is the overlapping memberships of departmental officers on agencies within other departments. Thus, the Commissioner of Conservation and Economic Development is a member of the State Soil Conservation Committee in the Department of Agriculture and a member of the Realty Improvement Water Supplies and Sewer Systems Advisory Committee in the Department of Health. The Director of the Agricultural Experiment Station can coordinate the Station's mosquito functions with those of the State Mosquito Commission in the Department of Conservation and Economic Development on which he serves as a member. Yet, the Commission has only a

limited number of functions to perform. At best, these ties could lead to only partial coordination. An example of an interdepartmental coordinating mechanism is State Soil Conservation Committee which is composed of officers of the Agricultural Experiment Station, the departments of Agriculture and Conservation and Economic Development and a member appointed by the Governor. With a comprehensive water resources program, ample powers and ample funds such as interdepartmental mechanism could prove to be an effective coordinating device; without these, the Soil Conservation Committee succeeds only within a narrow range of objectives.

(2)

Informal Interdepartmental Ties

Neither are there adequate informal interactions among agencies of the various departments. Table 3-8 indicates the pertinent interdepartmental committees in existence and their memberships. Committees such as the Interdepartmental Committee on Planning and the Interdepartmental Committee on Surface Water Pollution Abatement deal with certain aspects of water problems. The Governors Committee on Disease Control and its subcommittee, the Joint Drainage Committee provide a basis for comprehensive interdepartmental coordination. However, at best, informal coordinating mechanisms can be effective only when agencies have a common interest and are willing to cooperate, when there is strong leadership by the Governor, when comprehensive programs are developed and when there are ample powers and funds to implement such programs.

c. Powers, Programs.

Only a brief summation of findings concerning powers and programs at the State level will be attempted here.

First, comprehensive regulatory power is posited on the State level. At the same time, there are gaps in connection with such powers or in their administration.

Second, it is in the authority to undertake operations pertaining to the control, development and protection of water that the greatest weaknesses exist on the State level.

Third, there is a paucity of public funds allocated to agencies on the State level to finance pertinent programs. This situation has limited the capacity of the State to undertake operations, to collect and develop data, to formulate standards and enforce them, and to maintain some administrative control over public and private activities involving and affecting water resources. For example, it has been indicated that the administration of the State encroachment laws has been hampered by the

Table 3-9

Interdepartmental Committees
Directly or Indirectly Concerned
With Water Policy

(1) Interdepartmental Committee on Planning: Subcommittee on Open Space

Agencies: Highways, Health, Institutions and Agencies, Agriculture, Conservation and Economic Development (divisions of State and Regional Planning, Water Policy and Supply, Fish and Game, Resource Development)

(2) Interdepartmental Committee on Surface Water Pollution.

Agencies: Health, Conservation and Economic Development (divisions of Water Policy and Supply, State and Regional Planning, Fish and Game, Resource Development, bureaus of Commerce, Parks and Recreation).

(3) Interdepartmental Committee on Disease Control
(Subcommittee: Joint Committee on Drainage)

Agencies: Health, Conservation and Economic Development, Agriculture, the Agricultural Experiment Station, Highways, Law and Public Safety, County mosquito extermination commissions, County engineers.

(4) Other Committees

- (a) Tocks Island
- (b) Wharton Tract

lack of personnel in the Bureau of Water Control and the inability of the Attorney General's office to handle referrals from the Bureau in connection with the violations of existing statutes.³³ Similarly a recent report has indicated a need for a full staff of qualified engineers in the Department of Health to perform its drainage and pollution control functions.³⁴

d. Political Responsiveness, Accountability, Viability.

There is no doubt that the State level agencies can represent all regions of the State and thereby can transcend the limits of illogical political boundaries. The Governor is the only elected State official with a State-wide constituency. To the extent that State agencies are accountable to him, there are responsive bonds between the programs undertaken by his administration and the citizens of the State. The existence of such bonds, of course, depends upon the amount of leadership exerted by the Governor in developing and pursuing programs. Furthermore, the functional decentralization of decision-making does provide access points for many organized and unorganized interests.

At the same time, in connection with preserving democratic values, there are difficulties on the State level. Until recently, there has been malapportioned legislative representation. Decentralized decision-making, lack of strong executive leadership and the absence of coordinating mechanisms have resulted in the making of decisions differentially responsive to segmental interests and in the inability to accommodate differing objectives, programs and techniques. Decentralized decision-making, has limited the accountability of the State governmental agencies.

The State must play the principal role in the organizing of water resources programs. In the formulation of recommendations, existing weaknesses have been taken into account.

C.

INTERLEVEL COORDINATION

The basic outline of the complex interaction among agencies on each governmental level has been set forth. It has been noted that many agencies on all governmental levels perform functions which involve or affect water control specifically and water resources management generally. This section focuses on those conflicts or potential conflicts which can result from incompatible objectives, overlapping or differing program methods of operation, impeded communication and generally lack of coordination among levels of government. One source of difficulty is the sheer number

Table 3-10

Selected Data on State
Finances Pertaining to
Water Resources Management,
1965

State Appropriations, 1965

	1965 Appropriation (Dollars)	Positions Budgeted (Number)
DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT		
Division of Resource Development	\$ 3,464,294	
Bureau of Navigation		71
Division Water Policy and Supply	483,349	48
Division Shell Fisheries	363,442	
Division Fish and Game	1,709,476	157
Division State and Regional Planning	304,277	
Interest on Bonds	3,215,450	
Department Total	10,477,634	
AGRICULTURAL EXPERIMENT STATION*	21,678,238	
DEPARTMENT OF HEALTH, GENERAL*	3,993,562	
Division Environmental Health		95
HIGHWAY DEPARTMENT*	30,871,397	

	1965 Appropriation (Dollars)
<u>Special Funds 1965</u>	

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT

Division of Resource Development

State Recreation and Land Acquisition*	\$47,580,182
Beach Protection - Federal	238,258
Agricultural Conservation - Federal	3,252
Planning Small Watersheds - Federal	200

Division of Water Policy and Supply

Leased Land for flood control	1,620
State Water Development Bond Fund	11,669,053

Division of Fish and Game

Pollution Control	27,332
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Division State and Regional Planning

Cooperative Governmental Planning*	750,000
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Table 3-10 (Continued)Federal Expenditures Not Budgeted, 1965

<u>Department of Conservation and Economic Development</u>	
Watershed Programs	\$ 1,002
Planning	650,000
Leased Land for flood control	2,100
Pollution control	20,000
Agricultural conservation	5,000
<u>Highway Department*</u>	91,709,548
<u>Health Department*</u>	1,648,284
<u>Department of Agriculture*</u>	
Statistical Services	10,000
Agricultural load fund	15,000

State Aid, 1965

<u>Department of Conservation and Economic Development</u>	
Inland Waterways and Shore Protection	\$ 1,400,000
Planning	200,000
State Mosquito Extermination Commission	300,000
<u>Highways*</u>	16,943,625

* Note that figures so marked are gross data which comprehend water resources expenditures, but include also expenditures for other purposes.

(Source: State of New Jersey, Budget Message of Governor Richard J. Hughes. Trenton, February, 1966. passim.)

of programs involved in or affecting water resources management. Exacerbating the disintegrative administrative forces are the numerous clientele groups and constituencies to which particular agencies on each level respond differentially. A partial inventory of these constituents and clienteles has been constructed in Table 3-12.

One task of this report was to evaluate existing interlevel mechanisms, whereby potential conflicts are anticipated, conflicting objectives, techniques and values are accommodated, communication is facilitated and programs are coordinated. Mechanisms of coordination have been considered in four ways: first, as formalized interactions and interagency ties; second, as informal interactions among agencies on various governmental levels; third, as regulatory power enforced by higher level agencies to give effect to comprehensive and uniform standards and plans; fourth, as programs of interlevel technical and financial aid to lower level agencies to encourage the effectuation of standards formulated on the higher levels and to encourage the undertaking of certain actions. A major finding of this report is that interlevel coordinating mechanisms are inadequate at present and that new mechanisms should be devised.

1. Federal-State Regulations.

There is evidence to indicate conflict among Federal agencies involving their jurisdiction and their program objectives and techniques, and conflict between some Federal and State agencies.

a. Federal Level Coordination.

There are inadequate organizational mechanisms on the Federal level to coordinate water resources programs.³⁵ The Federal Interagency Committee on Water Resources composed of representatives of the Secretaries of Agriculture, Army, Commerce, Health, Education and Welfare, Interior, Labor and the Federal Power Commission, has begun some coordination of the objectives and policies of Federal agencies by pooling resources and data and by undertaking multipurpose research. However, coordination among agencies in different departments is incomplete. To an extent, there has been an attempt to coordinate the programs of the Corps of Engineers and the Soil Conservation Service; legislation provides for the review of these programs by the Secretaries of the Army, the Interior and Agriculture (16 U.S.C.A. 1005, 33 U.S.C.A. 701 b-1, 701 a-1). In addition, a Memo of Understanding between the Corps and the Soil Conservation Service has spelled out the areas of jurisdiction of each agency; and memos of understanding among soil conservation districts also have spelled out areas of jurisdiction within the State. However, there has been evidence

Table 3-11

Agencies with Primary and
Secondary Water Resources
Management Functions

<u>Primary</u>	<u>Secondary</u>
I. <u>FEDERAL AGENCIES</u>	U.S. Coast Guard
U.S. Army Corps of Engineers	U.S. Coast and Geodetic Survey
U.S. Department of Agriculture	National Park Service
Soil Conservation Service	U.S. Bureau of Outdoor Recreation
Farmers Home Administration	U.S. Office of Civil Defense
Agricultural Stabilization and Conservation Service	Federal Power Commission
U.S. Public Health Service	Housing and Home Finance Agency
U.S. Department of Commerce	
Bureau of Public Roads	
Weather Bureau	
U.S. Department of Interior	
Geological Survey	
Fish and Wildlife Service	
II. <u>INTERSTATE AGENCIES</u>	
Delaware River Basin Commission	
Interstate Sanitation Commission	
III. <u>STATE AGENCIES</u>	
See Table 3-7, p. 99.	
IV. <u>SPECIAL AGENCIES</u>	
Soil Conservation Districts	
Drainage Districts, Commissions	
Sewerage Districts, Authorities, Joint Meetings	
Flood Commissions	
Regional Planning Boards	
Water Supply Districts	
Land Bank Companies	
V. <u>COUNTY AGENCIES</u>	
Boards of Freeholders	Park Commission
Planning Boards	Health Districts
Engineers	Agricultural Boards
Mosquito Extermination Commissions	
Sewerage Authorities	
Drainage Commissions	
Agricultural Agents	
VI. <u>MUNICIPAL AGENCIES</u>	
Governing Bodies	Building Inspectors
Planning Boards	Plumbing Inspection
Engineers	Zoning Boards of Adjustment
Boards of Health	Municipal Attorneys

Table 3-12

Partial Inventory of
Clientele Groups, Constituent
Groups Affecting Water Policies

ECONOMIC

Development Agencies	Commercial Fisheries Association
Real Estate Groups	N.J. Plainers and Packers Association
Agricultural Groups	N.J. Tongers Association
Developers, Builders	South Jersey Shellfish Association
Utilities Companies	State Grange
Chambers of Commerce	American Waterworks Association
Manufacturers Associations	National Housing Officials
	N.J. AF of L-CIO

RECREATION

South Branch Recreation Association et al.
 Roadside Clubs
 Garden Clubs
 Lake Bathing Operators
 Sportsmen Clubs (State, county federation)
 National Wildlife Council
 National Waterfowl Council

HEALTH

N.J. Health Officers Association
 Health Sanitation Association
 Sewage and Industrial Waste Association
 Weed Conference
 Conference of State Sanitary Engineers
 N.J. Water Pollution Control Association

PLANNING

Federation of Planning Boards
 Passaic Valley Citizens Planning Association
 Northern Valley Planning Association
 Northwest Bergen Regional Plan Association
 Pascack Valley Planning Association
 Tri-County Planning Association
 Raritan Valley Counties Planning Association
 Association of County Planners

WATERSHED ASSOCIATIONS

Stony Brook-Millstone (Mercer, Somerset, Monmouth, Hunterdon)
 Oldmans Creek (Salem)
 Pompeston (Burlington)
 Rancocas (Burlington)
 South Branch Raritan (Hunterdon-Warren)
 Upper Raritan (Morris, Somerset, Hunterdon)
 Association of Watershed Associations

Table 3-12 (Continued)COUNTY AND LOCAL PROFESSIONAL GROUPS

League of Municipalities

Conference of Mayors

Municipal Engineers

County Engineers

Association of Mosquito Extermination Commissions

Association of County Planners

Federation of Planning Boards

Association of County Freeholders

Association of Local Health Officers

Association of Soil Conservation District Supervisors

Local Attorneys

County Agents

County Agricultural Boards

of conflict between these agencies involving areas of jurisdiction and program objectives and techniques.

b. Federal-State Coordination.

There are no adequate mechanisms at the State level in New Jersey to coordinate programs administered by Federal agencies within the State. The review of Federal projects by agencies within the State is not complete. To the extent that such review takes place rarely are multipurpose variables considered. More likely, projects are reviewed by single purpose agencies or those with limited perspectives.

Some Federal and State legislation provides for the review of Federal programs to be undertaken in the State. Accordingly, applications by local organizations for assistance in undertaking "works of improvement" pursuant to P.L. 566 must be submitted to and not disapproved by the State agency having pertinent supervisory responsibility or by the Governor (16 U.S.C.A. 1003). Applications for advances from the Federal Government for planning for public works, pursuant to Section 702 of the "Housing Act of 1954" must be approved by the Department of Conservation and Economic Development as to whether such application complies with pertinent State legislation and meets with the approval of other interested agencies (N.J.S.A. 52:27e,28). The Corps of Engineers holds hearings prior to the undertaking of its projects. River basin studies are authorized to study the impact of Federal programs in the State (See 16 U.S.C.A. 1006). In all, these provisions were not found to constitute systematic review of Federal projects, according to some comprehensive plans or standards.

Review of Federal programs by a multipurpose agency on the State level does occur when the State Division of Water Policy and Supply exercises its authority to regulate stream channel encroachments, dams, and the withdrawal and diversion of water (N.J.S.A. 58:1-1 et seq., 58:4-1 et seq.). In addition, the Delaware River Basin Commission may review Federal projects with reference to multipurpose plans and standards (N.J.S.A. 32:11D-21). However, it was found that there is need for greater control over Federal programs with reference to all aspects of water resources management and within all areas of the State.

2. State-Local Relationships; Interlocal Relationships.

Another finding is that there is inadequate coordination between State-level agencies and local agencies. (Those agencies designated as local are municipal, county, and special agencies.)

a. Financial Aids, Regulatory Powers as Coordinating Devices.

The powers of the "carrot" and the "stick" may be used as coordinating or control devices. At least two kinds of authority are involved: regulatory authority; and authority to extend technical and conditional financial aid.

(1)

State Level Agencies

The Department of Conservation and Economic Development is among the two agencies of those examined which has been granted extensive regulatory powers. Within the Department, the Division of Water Policy and Supply has the greatest regulatory powers of any agency surveyed. Pursuant to the State Encroachment Law (N.J.S.A. 58:1-26,27) and the Dam Law (N.J.S.A. 58:4-1) which it administers, the Division is authorized to approve or reject proposed projects or undertakings of all public agencies and private persons on or adjacent to any stream in the State.³⁶ (Similar powers have been granted to the Bureau of Navigation in connection with navigable waters.) In addition, the Division is authorized to regulate the diversion and withdrawal of ground and surface water for public and private uses (N.J.S.A. 58:1-17, 35 to 50, 58:4A-1,2), and thereby regulate streamflows insofar as they affect sanitary conditions of streams. However, because of the limits of these statutes, because the various bureaus of the Division have not established comprehensive programs, and because the Division does not administer adequate funds, the effectiveness of these statutes as coordinating devices is not complete.

Other agencies in the Department do not exercise such regulatory powers, but they do administer funds which could be granted on the condition that recipient agencies conform to criteria established by the Department. The Division of State and Regional Planning administers Federal and some State aid funds: Sections 701 and 702 of the Federal Housing Act provide for financial assistance for general planning and planning for public works, subject to conditions established by the Division; Section 103-d of the Federal Housing Act of 1949 provides aid for preparing community renewal programs subject to criteria established by the Division; and the "50/40" State program of financial assistance for continuing planning also may be granted subject to conditions imposed by the Division. Similarly, the Green Acres Unit of the Department can withhold aid pursuant to its local assistant program for the acquisition of open land until recipients conform to criteria established by it (N.J.S.A. 13:8A-9,10). However, in all instances, the primary purpose of these programs is not the coordination of programs involving or affecting water control and use. Furthermore, there is no comprehensive program which can be

referred to in imposing conditions pursuant to these aid authorizations.

The Department of Health is the other agency which has extensive regulatory powers. Furthermore, it administers some aid programs which could be used for coordinating purposes in connection with drainage and water pollution control.

In connection with the alleviation of problems of impeded drainage causing public health problems, the Department formulates and enforces a State Sanitary Code.³⁷

The Commissioner of Health is authorized to control local boards of health: by controlling the appointments of local health officers (N.J.S.A. 26:3-20,20.1,21); by requiring boards to report to him (N.J.S.A. 26:3-35,36,26:4-24,26:1A-20); by requiring boards to establish and maintain programs of recognized public health activities and to meet minimum standards of performance; and by requiring health officers to perform such acts as he directs (N.J.S.A. 26:1A-20). Again, these powers may be applied only to limited aspects of water control. Furthermore, there is evidence that there has been some difficulty in coordinating the activities of local boards of health which are susceptible to local political pressures.

The Department of Health has the power to supervise the construction of sanitary facilities in the State generally and specifically to approve the construction of sewerage facilities and sewage treatment plants, and to license operators of sewerage facilities (N.J.S.A. 58:11-14 to 16). Furthermore, it administers Federal aid programs in connection with water pollution control and the construction of sewage treatment plants (33 U.S.C.A. 466c, 466e; N.J.S.A. 52:27c-28). Yet, except insofar as it is required to establish plans and criteria for the administration of Federal aid funds, it has not developed planning criteria pertaining to the size and location of sewerage facilities and sewage treatment plants; it merely has administered such funds according to technical criteria designed to insure the safety and effectiveness of these facilities. It is evident that in addition to the need for planning and additional regulatory powers, the Department needs to enforce the powers it does possess more effectively.³⁸

Finally, the Department has some power to supervise the creation of sewerage districts and to supervise the activities of districts and authorities. It has been indicated that much more needs to be done to bring under control the many authorities and districts in this State which are not coordinated with the policies of general purpose governmental agencies.

The State Highway Department potentially has the capacity to coordinate drainage and flood control activities associated with the construction and maintenance of roads pursuant to its aid programs. The Commissioner can exercise controls over road

work undertaken by county and local officials: by approving plans and specifications for work done on State highways by counties and municipalities (N.J.S.A. 27:9-1; 27:10-1; 27:14-3,5,6; 27:15-1, 1.17; 27:8-1); and by approving applications for assistance for the replacement of public roads and county bridges when damaged by unusual storms or floods (N.J.S.A. 12:15A-1,6).

The Department of Agriculture has few supervisory powers and few funds with which to effect coordination among agencies on different levels. The Soil Conservation Committee did supervise the formation of soil conservation districts (N.J.S.A. 4:24-8). It appoints and fixes the terms of office and provides per diem payments for district supervisors who serve at its pleasure (N.J.S.A. 4:24-12.3,18,19). It must approve employment of all district personnel (N.J.S.A. 4:24-20). However, once these districts have been formed, the Committee can exercise only limited supervision over their activities.

Within the Department of Education, the Agricultural Experiment Station is in a position to direct and supervise work undertaken by county agents and mosquito extermination commissions (N.J.S.A. 26:9-1 et seq.; 4:6-23; 4:16-22,23). However, the power of the Station is limited in this connection.

(2)

Delaware River Basin Commission

The Delaware River Basin Commission does provide an example of control within a single drainage basin of the activities of public agencies and private persons. It is well endowed to formulate and enforce regulations pertaining to water supply, pollution control, flood protection, watershed management, the development of hydro-electric power, the diversion and withdrawal of surface water and the promotion of recreation. It can promote coordination among agencies on all governmental levels in these matters (N.J.S.A. 32:11D-22). It is authorized to exercise jointly, the sovereign powers of the signatory states to alleviate interstate problems (N.J.S.A. 32:11D-3). It is authorized to review, approve, or reject any project having a substantial effect on the water resources of the Basin (N.J.S.A. 32:11D-21). In addition, it is authorized to extend to municipalities, technical and financial aid, to give effect to the standard established by the Commission (N.J.S.A. 32:11D-35).

While these powers constitute significant controls within the basin, the problem is to coordinate such decisions with those made by other agencies in the State. Some coordination is possible on the State level pursuant to provisions requiring reports by the Commission to the State Legislature and requiring it to conduct hearings whenever substantial objections to its programs are filed.

An excellent basis has been established for the coordination of the decisions of the Commission with those of other agencies by the issuance of Administrative Manual II, Rules of Practices and Procedures.³⁹ This manual clearly defines those projects which are considered to have a substantial effect on the water resources of the basin and are subject to review by the Commission.

In summary, the Commission does provide an example of a regional, interstate, multipurpose organization with a capacity to regulate all water resources activities within a major drainage basin. At the same time, its existence can result in problems for interlevel coordination within the State. Coordination of the policies of the Commission with other agencies in the State will not be possible until a comprehensive water resources management policy is developed for the entire State.

(3) County-Level Agencies

Counties neither are sufficiently empowered to coordinate the programs undertaken within their borders by Federal and State agencies nor to coordinate, control and supervise activities undertaken by municipalities located within county borders.⁴⁰

In the first place, the few pertinent services performed by county agencies are restricted by limited funds. Only a few statutes provide for county aid to municipalities and the sharing of expenses with municipalities in connection with the undertaking of sewerage and drainage programs.⁴¹

Second, county agencies possess few regulatory powers; those which they can exercise are inadequate. Counties have not been granted zoning powers. Planning laws generally are weak; subdivision laws enabling planning boards to review and approve subdivision plats and to require certain information from municipalities, provide them with only limited regulatory controls. It has been indicated that a few counties have aggregated planning laws with powers to regulate roads to provide them with some leverage over municipalities and persons in connection with storm drainage. However, county agencies often have found themselves functioning without being able to point to specific enabling authority.⁴²

Unless standards can be formulated and promulgated on the county level; unless counties are empowered to undertake substantial programs which are adequately financed, coordination of water management activities will be hampered on this level.

b. Interagency Ties.

State-Local Ties. There is no orderly pattern of formal and informal ties between local and State agencies. Only the Soil Conservation Committee provides an example of formal relationship between officials from State agencies and those from agencies below the State level, in this case, representatives from the soil conservation districts. While both the Commissioner of Health and the Director of the Agricultural Experiment Station are authorized to be ex-officio members of county mosquito extermination commissions, these authorizations have not led to continued coordination between the State and the work undertaken by these commissions (See N.J.S.A. 26:9-14). What has developed is a patchwork of formal and informal ad hoc relationships between State agencies and agencies on regional, county, and municipal levels. While many of these relationships are established to deal with similar or overlapping functions, there is no effective mechanism for review to evaluate all aspects of water resources management and to measure and anticipate consequences of individual programs and actions.

County-Municipal Ties. The only formal interagency ties found between county and municipal agencies were those providing for the representation of members of local boards of health on county planning boards (N.J.S.A. 26:9-14).

While there are many informal interactions between county and municipal officials, some more orderly relationships are required in order to coordinate interrelated activities within each county.

The Joint Drainage Committee. This committee, composed of representatives of State and county agencies, was formed to search for mechanisms to coordinate intra-level and inter-level decisions and programs. Its composition and the scope of its concerns provide a clue to the type of mechanism that is needed to provide such coordination.⁴³

D.

SUMMATION

The major deficiencies which have inhibited coordination of water resources management decisions, programs or activities are the following:

- (a) incomplete regulatory authority, deficient because of statutory limits, because of weaknesses of agencies authorized to enforce them or because of a lack of effective enforcement;

- (b) lack of funds at the disposal of agencies and the inability to formulate comprehensive standards or criteria which could be referred to in undertaking projects or in proffering conditional aid to other agencies;
- (c) lack of mechanisms by which relationships within governmental levels and among them could be structured.

Chapter III

FOOTNOTES

¹ See, Municipal Planning Controls Survey, op. cit., passim.

² Available data indicate that there are 53 municipal sewerage authorities, seven joint meetings and nine intermunicipal authorities or districts.

Files of the New Jersey Department of Health, 1965. See also, New Jersey Division of Local Government, Department of the Treasury, Twenty-Seventh Annual Report, 1964, pp. x, xi, xxii.

³ Supra. ch. 2, passim.

⁴ Supra. pp. 37,47,54.

⁵ See, N.J.S.A. 40:48-18,29; 40:48B-2,7,8. Provisions are cited in Appendix.

⁶ See, New Jersey Mosquito Extermination Association. Proceedings Fiftieth Annual Meeting, March, 1963, pp. 2,3.

⁷ New Jersey Department of Conservation and Economic Development. Division of State and Regional Planning. The Setting for Regional Planning, Trenton, 1961, p. 94.

⁸ Files of the New Jersey Department of Health, 1965.

⁹ Files of the New Jersey Soil Conservation Committee, 1965.

¹⁰ Supra. pp. 40,50,53.

¹¹ Ibid.

¹² Supra. p. 34. Soil Conservation districts, which are coterminous with county boundaries have limited authority to enact land use regulations. Supra. p. 98.

¹³ Supra. p. 43, footnote 34.

¹⁴ Supra. ch. 2, passim.

¹⁵ See, Rutgers, The State University, the Bureau of Government Research. An Analysis of the Proposed Pennsauken Watershed Authority Act and A Recommended Alternative Approach. Unpublished Report to the New Jersey Commissioner of Health. February, 1965, pp. 1 to 3.

¹⁶Other criteria must be considered in determining the adequacy of regional agencies. See: The Setting for Regional Planning, op. cit., passim.; Martin et al., River Basin Development and the Delaware, op. cit.

¹⁷Supra. p. 37.

¹⁸Ibid.

¹⁹Supra. p. 54.

²⁰N.J.S.A. 58:12-7 to 9.

²¹N.J.S.A. 40:14A-1; 40:30A-1.

²²Passaic Valley Sewerage Commission N.J.S.A. 58:14-1.

²³Supra. p. 86.

²⁴See, Report of the State Advisory Committee on Sewage Disposal, op. cit., passim.

²⁵N.J.S.A. 32:11D-3.

²⁶Supra. p. 39.

²⁷Supra. p. 48.

²⁸See, Robert G. Smith, Public Authorities, Special Districts and Local Government. National Association of Counties Research Foundation. Washington, 1964, ch. 3.

²⁹See, Bureau of Government Research, An Analysis of the Proposed Pennsauken Watershed Authority, op. cit., passim.

³⁰Supra. p. 48.

³¹See the discussion concerning the public interest. Supra. p. 19.

³²Frederick Bohlen, "The New Jersey Governor: Figurehead or Leader" Public and International Affairs II (Spring, 1964) pp. 41-57.

³³Supra. p. 74.

³⁴Report of the State Advisory Committee on Sewage Disposal, op. cit., p. 6.

³⁵For somewhat dated surveys of problems of coordination see: Irving Fox "National Water Policy Issues" 22 Law and Contemporary Problems (Summer, 1957) pp. 472-509; James Fesler "National Water Resources Administration" Ibid. pp. 444-471.

³⁶Supra. p. 70.

³⁷Supra. p. 67.

³⁸See, Report of the State Advisory Committee on Sewage Disposal, op. cit., passim. (It should be noted that some of the recommendations of this Committee have been put into effect by the Department of Health.)

³⁹Trenton, February, 1964.

⁴⁰Examples of lack of coordination within counties is illustrated by the results of a poll of county mosquito extermination commissions in 1963-64. A sample of responses follows.

- a. Do you secure recommendations from the State Division of Water Policy and Supply prior to undertaking drainage work?
- | | |
|-------|-------|
| 5 Yes | 12 No |
|-------|-------|
- b. Do you enlist the aid of the Soil Conservation Service?
- | | |
|-------|-------|
| 5 Yes | 12 No |
|-------|-------|
- c. Have you experienced difficulty with Highway or Railroad culverts set so high that complete drainage is impossible?
- | | |
|--------|------|
| 13 Yes | 4 No |
|--------|------|
- d. Have you experienced difficulty with utilities buried so shallow across streams that proper drainage is impaired?
- | | |
|--------|------|
| 13 Yes | 4 No |
|--------|------|

⁴¹Ch. 2, passim.

⁴²Supra. p. 91.

⁴³Members of the Joint Committee on Drainage include: eight representatives of the New Jersey Association of Chosen Freeholders; a freeholder representing the Committee on Health of the New Jersey Association of Freeholders; a representative of the State Mosquito Extermination Commission; the directors of the State divisions of Water Policy and Supply, State and Regional Planning, Fish and Game, Shell Fisheries, Environmental Health; the Executive Secretary of the State Department; and the Dean of the College of Agriculture and Environmental Science, Rutgers, The State University.



