AN APPROACH TO ENVIRONMENTAL ORGANIZATION CHANGE AND MANPOWER PLANNING IN THE STATE OF OHIO

U.S. ENVIRONMENTAL PROTECTION AGENCY
CHICAGO, ILLINOIS 60606

September 1972

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UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
1 NORTH WACKER DRIVE
CHICAGO, ILLINOIS 60606

Honorable John J. Gilligan
Governor of the State of Ohio
State Capitol
Columbus, Ohio 43215

Dear Governor Gilligan:

I am enclosing a copy of the final report entitled "An Approach To Environmental Organization Change And Manpower Planning In The State Of Ohio", prepared by the Stanford Research Institute, for your consideration. It has been a pleasure, and is a source of satisfaction to us in the Environmental Protection Agency, to have been in the position to provide this form of assistance to the State of Ohio.

We believe that the SRI study and this resultant report have been highly successful in fulfilling the mandate which the State of Ohio - USEPA Project Advisory Group conveyed to SRI; namely, that this study complement the study effort of your Citizens Task Force On Environmental Protection. The conclusions and recommendations of the SRI study team represent a culmination of considerable and thorough effort on their part, and meaningful participation and deliberation on the part of many State of Ohio and Federal officials and staff members.

This study is the first environmentally - integrated approach to organizational management and manpower planning to be attempted and accomplished as a joint State - Federal cooperative effort. I feel that through sincere, cooperative efforts of this character, attainment of the quality of life concept for all of our citizenry is not unrealistic, but truly within our capability at all levels of community and inter community bonded society. The study presented an opportunity for designing an effective organization structure that could address itself in a meaningful and efficient manner to accomplishment of Ohio's balanced goals to attain a healthy and desirable environment. Passage and enactment of comprehensive environmental protection legislation including the

creation of the Ohio EPA has certainly provided an initial meaningful framework toward these ends. The Report provides a blueprint for effecting many of the institutional changes and identification of commitments that will be necessary to assure pursuit of successful courses of action in accomplishing your meaningful goals. We feel that Stanford Research Institute, and in particular Dr. David Ackerman, Study Project Manager, deserve our compliments and gratitude for performing a very challenging assignment in a very capable manner.

Please accept this Report with our best wishes for your future success in designing and accomplishing a meaningful and well articulated environmental protection program.

Sincerely,

Francis T. Mayo

Francis T. Mayo
Regional Administrator

STANFORD RESEARCH INSTITUTE
MENLO PARK, CALIFORNIA 94025
(415) 326-6200

Mr. Francis T. Mayo
Regional Administrator, Region V
Environmental Protection Agency
1 North Wacker Drive
Chicago, Illinois 60103

Dear Mr. Mayo:

Stanford Research Institute is pleased to present to you the findings and recommendations that resulted from the study conducted in the State of Ohio under Contract #68-01-0174. The report is entitled "An Approach to Organizational Change and Manpower Planning." We believe that the environmental protection organization recommended in this study will provide the State of Ohio with a positive means for effectively coping with the State's environmental problems.

In order to be effective, such an organization must be capable of dealing constructively with rapid changes in technology, legislation, and strategies for accomplishing environmental objectives and goals. Therefore, an important element in our design was the inclusion of an organizational means for accomplishing the orderly change necessary to meet public expectations regarding environmental issues. We believe that this study may also prove to be of value in aiding other states to address similar problems.

We would also like to express our appreciation for the considerable help that your office provided to the SRI project team. The State of Ohio was very receptive and helpful in all aspects of the study. Without the close cooperation of the State of Ohio and the Federal EPA, this study would have been considerably more difficult to accomplish. We gratefully acknowledge the substantive contributions made by the many individuals from both organizations who participated in this effort, but we must also point out that the findings presented in this report represent the independent assessment of the SRI project team.

Sincerely,

David Ackerman
Project Leader

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I INTRODUCTION

Ohio's environment is a matter of intense public concern. Public attention is addressed to problems of pollution of air and water, treatment and disposal of wastes, and management or conservation of essential resources. Although environmental problems occurring in Ohio are similar to those present in other parts of the nation, Ohio's large population and high degree of industrial, municipal, and agricultural development accentuate these problems and underscore the need for a coordinated approach directed toward achieving environmental quality goals. The promixity of diverse activities in Ohio leads to complex interrelationships among their products, making the realization of effective means of pollution abatement and control more difficult. Therefore, prospective solutions to environmental problems should take cognizance of the influences of related activities to avoid creating different but equally unacceptable situations. A first step in dealing with these problems is the establishment of a new environmental protection unit in the executive branch of State government.

Design of governmental organizations to carry out present and emerging programs of pollution abatement and conservation of natural resources can shape the response to the "environmental crisis" and can influence the effectiveness of approaches to improvements in environmental quality. In recognition of the importance of environmental aspects of the quality of life in Ohio, Governor John J. Gilligan of Ohio appointed a Citizens Task Force to study and report to him the nature and extent of Ohio's needs concerning protection of the environment. The Citizens Task Force reported to the Governor in June 1971 that the State was not coping effectively with environmental problems and recommended that comprehensive legislation be introduced to provide Ohio with the ways, means, and resources to accomplish effective environmental protection for the public.*

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* Subsequent to the completion of this study, the Ohio General Assembly passed Amended Substitute Senate Bill No. 397 on July 6, 1972, which established the Ohio State Environmental Protection Agency. The organizational design recommended in this report is consistent with the objectives and functions of this legislation.

In response to this concern, the federal government sponsored this study to assist the State of Ohio in an intensive review of its environmental protection activities, which led to a recommended design for consolidation of presently separated environmentally related activities into a single State agency. By mutual agreement, the performance of the study was a joint effort of the executive branch of the State of Ohio and the federal agency, providing assistance to and participation with members of the Stanford Research Institute study team in detailed aspects of the design effort.

The approach employed in the study was based on the use of participative methods in all aspects of the study where possible. Communications were established with public officials of municipal agencies and regional planning bodies, as well as with private organizations throughout the State that represented diverse interest positions in regard to policies and activities related to environment protection. These methods emphasized the development of a consensus among the different interests and responsibilities represented by members of individual working groups established to address problems of State policy, intergovernmental relations, manpower planning, and technical operations. This approach employed applied theory and research in the behavioral sciences and management practice in identifying means to achieve constructive change within organizational structures. In particular, the approach emphasized the definition of critical institutional transactions that exert a major influence upon functional aspects of the organization.

The scope of the study covered:

- An assessment of environmental issues and objectives that have implications for organizational design, and a diagnosis of present operations and functions leading to findings and recommendations for organizational design.

- Development of a new organizational concept in keeping with goals and objectives of the organization, diagnostic findings and recommendations, and principles of organization and management.

- Definition of structural relationships of the new organizational concept, including description of authority, accountability, and responsibilities.

- Evaluation and estimation of staffing levels for the new organization.

- Development of guidelines for implementation of the new organization, including consideration of priorities, transition process guidelines, and schedules.

- Preparation of a manpower planning model to be used in definition of staffing requirements for critical functional activities.

This report summarizes the organizational design study effort; the assessment of environmental issues and objectives; and the study team's diagnosis of present operations, including findings and recommendations for organizational design. The new organizational design is described in detail, with examples illustrating how sample operations would be handled; and an approach to implementation of the new design is presented.

The study was sponsored by the Midwest Regional Office of the U.S. Environmental Protection Agency and was funded in part by the Division of Applied Technology, Office of Air Programs and the Manpower Development Staff of the Office of Water Programs.

II EXECUTIVE SUMMARY

In collaboration with the State of Ohio and the U.S. Environmental Protection Agency, SRI completed an intensive review of environmental activities currently being performed by separate agencies in the State of Ohio. The basic aim of this study was to conduct a diagnostic assessment of the present operations and, on the basis of the findings, to recommend a new organizational concept that would effectively consolidate the environmental-related activities into a single State agency. Another product of this study was a manpower model that was used as an aid to generate estimates of the staffing levels required to operate the new organization. Finally, guidelines for implementation were developed that included consideration of priorities, interim operations, and schedules.

The findings and recommendations that emerged from this study are those of the SRI project team and do not necessarily reflect the opinions and viewpoints of individuals or groups from any of the operating departments of the State of Ohio or the U.S. Environmental Protection Agency. The SRI study team benefited greatly, however, from the information, suggestions, and practical experience supplied by members of these organizations. Valuable inputs were also received from interested individuals and organizations throughout the State of Ohio.

The following are the major findings and recommendations that resulted from this study.

Finding 1

Environmental planning activities are presently divided among the Ohio Department of Natural Resources (ODNR), the Ohio Department of Health (ODH), and the Ohio Water Development Authority (OWDA); some elements of planning are also present in activities carried out by the Water Pollution Control Board. Planning, as it now exists, is performed on a piecemeal basis. Strategic planning as an operating concept does not exist.

Recommendation 1

Develop an organizational structure that centralizes the planning function and effectively insulates everyday operational processes from policy and future-oriented activities. Within this function, provision should be made for specialized sections responsible for categorical resource planning, intergovernmental planning, research and development planning, socioeconomic planning, and manpower planning.

Finding 2

Technical operations dealing with aspects of environmental quality are presently divided between the ODH and the ODNR. The resulting fragmentation decreases operating efficiency and creates problems of coordination that consequently increase the cost of achieving environmental objectives.

Recommendation 2

Develop an organization structure that will integrate all technical operations related to surveillance activities in order to avoid functional duplication and divided responsibility. A separate function should also be established to perform information processing and to be responsible for maintaining an environmental data base. An internal center of specialized technical expertise in environmental disciplines should be established to provide technical support for departmental operations.

Finding 3

Ohio has more than 2,500 political planning entities involved in environmental protection programs; they are governed by over 20,000 elected local officials. This diversity of local governments creates a climate of disunity with respect to environmental programs. Strong home-rule political and legal traditions encourage local resistance to direct State-local government cooperation and act as a barrier to regional cooperation and planning for the attainment of common environmental objectives.

There is no single responsible State focal point for coordinating the diverse intergovernmental activities and assuring accountability for performance of programs related to environmental protection. Responsibility for many of the programs involved in intergovernmental relations

is shared by several State agencies. This results in conflicting demands being placed on local governments, with no one responsible authority accountable for resolving these conflicts. Additionally, this divided responsibility provides no unified method for assessing the views, needs, and positions of local governments in regard to pending State and federal legislation. This resulting ambiguity places management obstacles in the path of officials responsible for administering the programs and projects of the several Federal agencies involved in environmental protection.

Recommendation 3

Develop a specific functional component within the State's environmental protection organization that is charged with the responsibility for coordinating all aspects of intergovernmental relations. Within the central planning function of the environmental protection organization, establish an intergovernmental planning section that will be responsible for developing State policies, standards, and criteria for intergovernmental operations and institutional transactions. This section should also be responsible for developing measures for evaluating the effectiveness of intergovernmental operations with respect to environmental programs and activities.

Finding 4

There is presently no single, coordinated approach to providing the information support required for management of technical and functional activities concerned with environmental problems. The present responsibility for collecting and disseminating information is divided between several State agencies. This difficulty is compounded by the use of different computer systems having different file-management techniques, programming languages, and data formats. No single organization component or agency has been designated as responsible for analyzing, designing, implementing, and maintaining a single, coordinated information system.

Recommendation 4

Establish a single, separate organization component with assigned responsibility for the following data management activities:

- Providing a single, unified, consistent, and compatible service for systems analysis, systems design, program development, data base design and management, and software development.

- Developing uniform user procedures, compatible forms design and control, and user orientation and training.

- Developing and implementing coordinated and effective data collection procedures, equipment, and operations.

- Designing and implementing a statewide system for data communication and voice communication to serve the total needs of environmental agencies.

- Providing access to a single, uniform, and compatible electronic computer system for data input, analysis, modeling, and retrieval throughout the environmental protection organization.

- Planning, designing, and implementing a comprehensive set of information systems employing a coordinated set of master files to serve the needs of all users and permit retrieval and analysis of relevant data for such functions as planning, operations, and management analysis and control, in order to provide a single source of key environmental data for all functions and categorical programs.

- Promoting and supporting programs for mathematical modeling and other data analysis techniques.

Finding 5

Legal services for environmental protection activities are presently provided by personnel assigned to the State Attorney General and by small legal staffs in both the ODH and the ODNR. Departmental legal personnel are also involved in legal matters outside of the environmental field. Consequently, this dispersion of legal responsibilities leaves the various environmental components in the present organizations without legal support. The modest legal resources now available to deal with environmental issues must be used to cope with pressing day-to-day problems. Adequate time and resources are not available for developing consistent and routine applications of case law precedents in enforcement of environmental laws and regulations.

Recommendation 5

Establish within the new organization an adequate and qualified legal staff, responsible to both the Attorney General and the Director

of the environmental protection organization. This legal staff would be responsible for providing support to the organization's activities related to hearings, litigation, and other judicial proceedings. Legal representation should be assigned also to each district office to provide local legal support and services. These field services would be coordinated by the central legal staff.

Finding 6

Interface and communication between the ODH and the ODNR and the State Personnel Department are presently inadequate and pose serious difficulties. Some of these problems result from the lack of a well defined reporting relationship between the State Personnel Department and other operating departments. Other serious problems that may have an adverse effect on the operation of the recommended organization are the following:

- A shortage of experienced, qualified professional personnel exists at both the supervisory and operational levels.
- Basic employment and salary administration policies are outdated.
- Manpower planning, training, staff development, and career path planning are not being performed; consequently, the human resource management function is limited in scope and capability.
- Recruiting of high talent personnel will be difficult under present circumstances because professionals will be unable to perceive possibilities for upward career progression.
- Staff professionals are underutilized in both the ODH and the ODNR; in many cases, engineers and scientific personnel are performing functions usually assigned to technicians or aides.
- The present organization is overcompartmentalized, and this condition serves to prevent appropriate interaction between professionals.

Recommendation 6

An organizational analysis of the personnel function at operating department levels should be performed prior to staffing to ascertain whether or not some functions now performed at the Personnel Department

level might be more advantageously executed by the operating department. If such is the case, appropriate steps should be taken to have these activities delegated to the operating department. Once that task is completed, the following additional steps should be taken:

- Personnel policies, practices, and procedures should be formulated and codified as a logical first step in developing a compatible personnel system.

- The data base of the State central personnel information system should be reviewed for completeness and adequacy, and consideration should be given to the development of additional modules to accommodate manpower planning and staff development.

- The basic functions of recruiting, placement, training, compensation, and career development should be included in the personnel section of the environmental protection organization.

- A skills survey should be undertaken to inventory and document the existing professional and technical capability of the staff in the ODNR and ODH.

- A complete and systematic job analysis of all jobs that will be included in the new environmental protection organization should be performed in order to establish position requirements, grades, and equitable pay scales.

- A program should be established to develop and coordinate environmental education programs with the universities, colleges, and junior colleges within the State to ensure an adequate supply of professional, technical, and paraprofessional environmental specialists to staff environmental programs administered by State, local, and private entities.

III CRITICAL ISSUES

This study was initiated at a point in time when the State of Ohio was intensely involved with finding solutions for the critical environmental problems confronting the State. In this context, the problems that this study has had to face deal mainly with questions concerning: relationships between governments, organizations, industry, and the people of Ohio; changing relationships between Ohio and her sister states; relationships between the State of Ohio and the federal government; and, most importantly, the changing pattern of traditional State programs with respect to emerging environmental issues. The central concern of this study is not the physical environment of the State of Ohio per se, but rather a search for more effective ways to restructure the organizational means of addressing these problems.

The primary objective of this chapter is to delineate those issues that appear most relevant to the study and to indicate their impact on the organizational design for the proposed environmental entity. The factors that were excluded from the design considerations are specified, and the reasons for their exclusion are discussed. Also, the recommended organizational design is related to those issues that are still unsettled, and the alternatives that remain open are examined in case the State of Ohio decides to implement the recommendations before these issues are settled.

Quality of Life

The concept of quality of life is a pervasive idea that permeates many of the public issues competing for decision in the State of Ohio. This concept includes not only the quality of Ohio's physical environment, but also refers to the style of life and opportunities for realizing the potentiality for enhanced experience and creative living inherent in the social fabric of the State. In this context, the Governor's announced goal of "improving the quality of life" implies that the impact of any proposed program must be balanced against the sum total of its effects upon a wide spectrum of factors that collectively influence the expectancies of the citizens, organizations, and social institutions in the State of Ohio. Thus, the goal of improving the quality of life includes not only specific environmental protection programs, but also the impact of those programs on other sectors of Ohio's activities.

In pursuing this goal, the SRI project team contacted many diverse groups representing private and public viewpoints at the local and regional level, within the academic community, and within the legal profession, as well as conservation interests and other interested individuals. The project team was particularly concerned about identifying the perceptions and interest position of each of these groups in order to present a balanced input into the design of the organization. Quality of life, then, is more than the quality of the environment; it is the criterion against which all competing interests in Ohio can and should be measured.

This broad concept is a powerful force for bringing together the discrete actions of those diverse departments and agencies of State government charged with the responsibility for coping with the multifaceted problems of the environment. The concept also requires their coordination and collaboration on problems that may normally be under the jurisdiction of a specific department or on problems that fall within the jurisdiction of several cognizant agencies.

For this organizational study, the issue of quality of life has had two major consequences. First, in order to meet the expectations of the State of Ohio as set forth in the report of the Citizens Task Force, the proposed organizational structure would require a capability for assessing all aspects of environmental protection actions as they affect the quality of life within the State. This essentially means that the State's environmental protection organization will require the capability for assessing social, economic, and financial impacts of major environmental actions in addition to the technical capability required to protect the physical environment. Secondly, the environmental protection organization would be required to relate the totality of its programs and proposed actions to those of other State, federal, and local governmental agencies in order to meet the test for balanced improvement across all critical sectors of the State's activities. This requirement has been met by designing an organization capable of developing, implementing, and evaluating its own projected programs and activities. In the recommended organization, the process of developing and approving goals and objectives is also the means for deriving the standards against which the organization's contributions to the objective of improving the quality of life in Ohio are evaluated.

Such an organization will have other implications, of course, for State-federal relations, program accountability, and citizen participation. The aspect of the organization that is relevant to the issue under discussion here concerns the role of the State environmental protection entity in contributing to the statewide objective to improve the quality

of life vis-a-vis other State departments that share the same common objective. The following example may help to illustrate this interplay between the environmental organization's goals and objectives and the statewide objective to improve the quality of life in Ohio.

If an objective is established by the State environmental organization to clean up the waters of the State, and specific goals with firm schedules are established for designated municipal and industrial waste treatment facilities, then there will be statewide financial, economic, and social impacts resulting from the implementation of these goals. The environmental protection organization will be responsible for assessing the financial, economic, and social implications of its goals and objectives from its own internal planning and evaluation capability. However, the organization will not have the jurisdiction to avoid all the adverse effects that are likely to result from the implementation of programs derived from the overall goals and objectives, nor will it be able to capitalize on the opportunities that could also occur as a result of this effort. Furthermore, goals related to cleaning up the waters of the State may require all industries on designated streams to install waste treatment facilities to treat their effluents by a specified date.

Conversely, testing the environmental protection organization's goals against the resources that can be brought to bear on similar problem areas by other State, federal, and local governments and agencies may indicate that, on balance, unless an infusion of new resources is provided by other collaborating organizations, the programs of the organization could have an adverse impact on the quality of life.

Superstructure

All parties involved in the study effort agreed that no consideration would be given to defining the superstructure of the environmental protection organization during the course of this study. Instead, the study was limited to designing the "microstructure" required of an effectively functioning environmental protection organization. Although the SRI study team adhered fully to this ground rule, the team was influenced in its conceptual thinking on the design of the new organization by the issues within the State bearing some relationship to questions of superstructure.

Within the context of this study, the question of superstructure included all reference to whether or not the environmental protection organization was to be a new and separate department for the State,

or whether it was to be an organizational unit within an existing department, such as a division of the Department of Health or the Department of Natural Resources.*

In terms of organizational requirements, it was not necessary to have new legislation defining the superstructure in order to complete the study. The recommended structure is a flexible, self-contained unit with all the capabilities, functions, and processes required to conduct an effective State program for protection of the environment. The concepts upon which the new organization is based would be valid and consistent regardless of whether the organization were treated as a new and separate department or as a unit within an existing department. Only the implementation plan is concerned with the transfer of personnel and functions from existing departments. However, even the implementation plan provides for alternative treatments of the superstructure. Provision was made for the possible establishment of an environmental protection organization by legislative action, or in the absence of such legislation, the organization can be developed by executive action from existing functions as they are currently established within the present departments.

The Scope of the Environmental Organization

Issues regarding the scope of the environmental organization are concerned with the nature of the proposed organization's capabilities and responsibilities. From a continuum of possible environmental concerns, the public, through the normal process of legislation and funding, has indicated its willingness to support protection activities related to programs to alleviate problems affecting the quality of air, water, water supply, and solid waste disposal. There are additional candidate programs, such as noise and radiation, that may be included within the scope of the new organization without disruption. It is only when the question of responsibility for the management of the State's land and other natural resources arises that debate becomes intense. The incorporation of these conservation responsibilities within the purview of the new organization is sought by the proponents of expanded "superagency" responsibilities, whereas the opponents of this concept favor a more limited regulatory scope consisting of activities directed toward the prevention of environmental pollution.

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* This issue was resolved after completion of the study through passage of new legislation.

This study was undertaken with the benefit of previous work performed by the Citizens Task Force on Environmental Protection, whose members discussed these issues at length and made the following recommendation:

> All current activities relating to environmental protection, conservation, development, and management in existing State agencies shall be consolidated into a single State department for environmental protection. New environmental functions and activities not presently a part of any department shall also be vested in this single agency.[1]

A reading[2] of the recommendations of the Citizens Task Force Report as to the functions to be assigned to the department of environmental protection indicates that the organization would have responsibility not only for existing and customary pollution control activities, but also for existing regulatory activities that affect the environment but that were not specifically created as environmental functions (such as general construction permits, soil conservation programs, agricultural permits, and functions of the Department of Natural Resources). The Task Force also had in mind the possibility of creating new functions, such as land use management and power plant siting for inclusion within the scope of the new agency.

The study team also had the opportunity to discuss the issue of organizational scope with a number of interested and well informed individuals who represented a cross section of interests and concerns in the matter. In addition, the study team had access to the working papers prepared for the Citizens Task Force, which included discussions of the approaches and solutions adopted by other states, as well as the more academic analyses of political scientists.[3] Three salient points related to questions of organizational design emerged from this material:

(1) The issue regarding the appropriate role or mission for an organization created specifically for the purpose of addressing environmental problems remains to be resolved. Uncertainty

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1 "Report of the Citizens Task Force on Environmental Protection," p. 111 (June 1971).

2 Ibid., pp. 112-115 passim.

3 "Task Force Working Papers," Vol. II, material prepared as a background report for the session on proposals and alternatives for the May 26 and June 2, 1971 meetings of the Task Force, p. 17 (Illinois), p. IV (Minnesota), p. V (Ohio) for examples, and pps. 13-71 passim.

remains about the question of whether such an organization should be primarily regulatory in its functional responsibilities or whether it should also be held accountable for the management of the State's environmental resources. This problem is not unique to Ohio; there is no clear consensus among either political scientists or practitioners in those states that have directly addressed the problem. The following observation by the Citizens Task Force summarizes the problem: "The linking of pollution control and conservation programs is perhaps the most interesting public administration issue."[4]

(2) The Task Force's decision to recommend an environmental protection organization that would include both conservation and regulatory functions was based on the assumption that the new organization would need resource management programs in order to provide a sufficiently large interest basis to make its programs effective in the context of adverse pressures created by other departments and interests.[5]

(3) There is a strong consensus to the effect that an environmental organization must be more than control or protection oriented (a remedial concept); it must also be responsible for maintenance and preservation of the environment (a concept focused on development of the environment).

These three points represent different views of organizations. Implicit in the first point is the acknowledgment that inclusion of regulatory and development functions in the same environmental organization is fundamentally a political question rather than an administrative or organizational one. The solution to this problem lies in future legislative action. The essential factor in the second point is the felt need to create an entity strong enough to perform its regulatory functions in an energetic and effective manner relative to both public and private sector activities. The third point relates to a developing understanding that, although remedial environmental measures may be required immediately, future development within the State should not only be compatible with an enhanced environment, but should also include independent efforts to further develop and husband the resources of the environment itself.

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[4] Ibid, p. 13; emphasis is in the original, which quotes Elizabeth Haskell, a fellow of the Woodrow Wilson Center at the Smithsonian Institute.

[5] E. F. Murphy, J.S.D., Professor of Law, Ohio State University, a member of the Task Force Executive Staff (private communication).

Each of these points has a common thread that is pertinent to the organizational design effort. First, each point is concerned with the scope of the organization. Secondly, the SRI concept of the new environmental protection organization is designed to accommodate the various facets of this issue but does not purport to settle it. For the SRI study team to have addressed these issues directly would have required judgments of a political nature, which would have preempted the right to decision on the issue. In the new organizational concept, the issue is addressed on grounds independent of, but compatible with, the eventual political settlement of this issue by the people of the State of Ohio. Future settlement of this issue will have the following consequences for the scope of the organization:

- Additional environmental responsibilities can be added to the new organization without affecting or disrupting other on-going activities. For instance, the organization could assume the responsibility for establishing standards for acquisition and use of the State lands without requiring a functional realignment to absorb such a program.

- The proposed new organization does not require a decision on the issue of environmental control versus maintenance or development of the environment to function effectively. The organizational processes of the new concept are equally responsive to either regulatory or developmental responsibilities. Should Ohio decide to undertake a statewide program of solid waste disposal sites,* the new organization could exercise its responsibilities for surveying, licensing, inspecting, etc., such sites through its existing functions. It could also undertake land use planning responsibility, either through its existing planning functions or through the establishment of an additional component dedicated to that task.

- Conservation and resource management responsibilities could be assigned to the new organization, but such responsibilities would be additions to rather than functions of the organization. The

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* This possibility could emerge out of a State-federal partnership resulting from a Congressional decision to implement a system of Hazardous Waste National Disposal Sites. A report to Congress is due by June 1973; EPA is investigating the feasibility of such a system. See Section 212 of Public Law No. 91-512.

addition of a conservation or resource management function would simply require the establishment of a separate component in the new organization. Little or no disruption would occur to the on-going processes of basic organizational elements. For example, the management of the State's lands could be assigned to the agency by establishing a division of land management within the organization.

The new organizational concept clearly provides for a separation of environmental control standards development and planning functions from resource management and development. The study team found no firm justification in theory or practice for combining on a program basis the several functions, such as standards setting, regulation, control, planning, and impact analysis, that have direct responsibility for resource management functions. Such a combination would be a tactical response to a strategic problem that would impair the flexibility of the organization in meeting new situations.

It is important to note that the above separation of environmental standards and planning from resource management and development responsibilities does not imply that the latter functions cannot or should not be assigned to the environmental protection organization. Assignment of such responsibilities to the organization, however, would require the establishment of an additional organizational component whose activities would be coordinated with those of other components through the normal management control functions of the organization.

Public Participation

Public participation* in environmental matters has been a fundamental element of the developing concerns of the people of the United States. This widespread issue is reflected in the attitudes of the people, groups, organizations, and governmental entities in Ohio. In Ohio, as with the rest of the nation, there appears to be no clear consensus on what the process of public participation means in terms of specific situations and particular actions and decisions concerning the environment. In some cases, public participation appears to involve the dissemination of environmental action information (a public information or public relations concept). A closely related approach is one that would make all data and information concerning the environment and sources of pollution available to the public upon request (a freedom of information concept).

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* This term includes "citizen's participation" and "public involvement" for purposes of this discussion.

In many circumstances, however, what is meant by public participation is a direct involvement in the decision-making processes--including the processes of formulation of goals and objectives--with respect to control of the environment and conservation of resources. This use of the term may also extend to participation in the execution of environmental protection functions and/or to the exercise of some form of public oversight with respect to how effectively environmental protection is being executed by the responsible governmental authorities.

As with several other critical issues addressed in this report, this study took cognizance of questions concerning the meaning of public participation and its implications with respect to organizational design. Participation must be tempered by the organization's need to be shielded from interference in its routine operations. Such interference could be disruptive of the organization's processes, authorities, and management responsibilities.

The design for the new organization took this consideration into account by insulating the processes of the organization from direct involvement by the public. However, this concept does not prohibit the public from exercising an important role in identifying issues and influencing environmental policies. Organizationally speaking, participation by the public has been facilitated by the establishment of a Public Interest Center, an organizational component reporting directly to the agency's Director. The center is described more fully in a later section of the report. This recommended approach is responsive to the desires of diverse segments of the public for participation in matters affecting the environment and the quality of life in the State of Ohio.

Pending Federal Legislation

Even the most casual observer of environmental issues cannot help but notice the rate at which the legislative and regulatory scheme for protection and control of the environment is changing. The changes making the most dramatic and immediate impact are the emerging federal legislative enactments with their accompanying implementing regulatory actions.

Rapid changes in the statutory and regulatory environment cause disorganizing effects in the more traditional and less flexible organizations that adapt to change slowly and only with great effort and internal disruption. Such organizations are ill-suited to cope with the rapidly increasing volume of governmental regulations affecting environmental programs. At best, these organizations find themselves continually off balance

because, while contending with the most recent statutory and regulatory development, new and often superceding legislation is being enacted.

The SRI study team, within the scope of its work, was required to anticipate pending federal legislation and also to consider possible implications for the new environmental organization.* Although an analysis of pending and proposed federal legislation was performed, the program requirements of such prospective enactments are not--and could not be--directly reflected in the organization's components. An important design consideration that emerged from this analysis of pending federal legislation and regulation was the requirement for organizational stability and continuity in the presence of rapidly changing program requirements. Consequently, in conceptualizing the design for the new organization, it was necessary to provide flexible and responsive structural arrangements that could adapt to changing circumstances without sacrificing organizational integrity and effectiveness.

Traditionally, organizations have gone to great lengths to constrain and stabilize the effects of change. While this tradition can be preserved, it can no longer be achieved by founding organizations on long term, unchanging programs. Confronted by problems of change, many organizations have solved the problem of stability by establishing internal functions and processes that can adapt to meeting changing tasks and programs. The SRI study team has employed this course of action.

While performing the study, the SRI team had many opportunities to discuss the pros and cons of pending legislation with individuals, groups, and government representatives and was exposed to a wide diversity of opinion. Like other issues discussed in this chapter, these matters are essentially within the political realm and clearly outside the permissible scope of this study. However, it should be pointed out that the organizational design recommended for the State of Ohio is capable of anticipating and absorbing new legislative and regulatory requirements, regardless of the outcomes of individual pending items, and it can do so without compromising its effectiveness or jeopardizing its equilibrium. The design of this new organization does not require that specific federal legislative and regulatory issues be settled; it does provide, however, for their orderly execution when called upon to do so.

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* The most significant federal legislation now pending in Congress is the Water Pollution Control Legislation, separate versions of which have been passed by the Senate and the House of Representatives and are now pending in conference committee as this report goes to press. The legislation, if enacted, would substantially affect the funding and program requirements in the water pollution control field.

IV ORGANIZATION DESIGN

Introduction

Organization design has played an important role in management practice and research during the past three decades, and indications are that it will play an even more central role in the future. The pressures of technological and social change have been instrumental in reducing the effectiveness of many institutional and organizational structures. Rapid change often brings in its wake new values and concepts, broader perspectives, sharply differing expectations, and demanding challenges. The diversity of technical processes and the magnitude of operations--both in government and industry--will require organizations that can perform efficiently despite their size and complexity. Innovative and more adaptable organizations will be needed if society's expectations for mastering the complex problems it faces are to be met.

As used here, organization design refers to the development of structures that relate roles, tasks, and authority relationships to the resource transformation process by which the organization's goals are achieved. As a discipline, organization design draws upon a variety of sources--management science, industrial engineering, systems analysis, economics, and the behavioral and political sciences. A primary emphasis is on integrating the different theoretical and functional concepts to develop the principles and methods for designing flexible and responsive organizational entities.

In pursuing the objectives of this study, the SRI project team worked within a systems frame of reference to merge the appropriate theoretical perspectives and disciplines. When applied to organization design, this interdisciplinary emphasis is on the totality of organizational patterns rather than any one element in isolation. This viewpoint provides a more comprehensive framework for organizing the complex sequence of events and processes comprising organizational life, and it facilitates the development of the structures required to support rational decision-making. In addition, the systems approach underlines the importance of the close relationship between organizational structure and its supporting environment, especially those factors that influence an organization's ability to achieve its goals and objectives.

The critical issue facing the designer is not so much improving the existing organization--which can always be done to some extent because a variety of technical means are available to do so--but determining what kind of an organization is required to cope most effectively and efficiently with the problems and challenges confronting it. This requires that any programs, activities, and structures included within such a framework be predicated on their capacity to support the organizations missions and goals.

In undertaking the design of an environmental organization for the State of Ohio, SRI's project team sought to develop a concept specifically oriented to Ohio's problems and concerns. Emphasis was placed on a structure that would maximize task performance and provide the necessary flexibility and responsiveness to meet changing conditions, new technological requirements, new patterns of organizational authority, staff acceptance, and the capacity to adapt to future enlargement of responsibility. The following processes were paramount in developing the design:

- The analysis must be performed within the context of the organization's ability to meet stated goals and objectives.
- Policy, functions, authority roles, and technological requirements must be structured to meet stated goals and objectives.
- Control and feedback processes serve as a means of maintaining consistency and stablity in on-going operations.
- Systematic use must be made of information processes to guide and facilitate organizational decision-making.
- All levels of staff membership must be involved in the development of the new organization design to facilitate acceptance and commitment to new directions in policy, function, roles, and patterns of authority.

Criteria for Organizational Design

The influence of organizational structure on human behavior is an increasingly important consideration in modern organization design. Careful examination of current trends in organization practice suggests that the rigid bureaucratic structure is giving way to more flexible, less restrictive forms. Organizations that can achieve a high degree of coordination while maintaining group and individual latitude for independent thinking and action are gaining preference over those forms that stifle innovation and initiative.

The success of any organization depends primarily on the human element. In the final analysis, the organization is a collection of people, and its goals, and the means developed to achieve its purposes are products of human desire and need. Cooperation within the organizational system is a fragile matter and cannot be taken for granted. The neglect of human requirements is often a major reason for the difficulties observed in organizational performance.

In developing an organization design for the State of Ohio, the SRI project team sought to balance the more impersonal aspects of organization structure by building a framework within which the personal satisfaction and well-being of the membership receive adequate recognition. The criteria employed in this effort assume that an effective organization should:

- Achieve the multiplicity of goals and subgoals that comprise the organizational purposes.
- Seek to maximize the organization's output, given the available resources.
- Maintain balance in the distribution of decision-making responsibilities among management levels, i.e., a balance between centralization and decentralization.
- Use as few management levels as are necessary to function effectively.
- Separate policy-making from everyday operations.
- Maintain an equitable balance between the purposes and goals of the organization and the needs and career goals of the membership.
- Have sufficient flexibility to be responsive to change in its internal and external environments. i.e., strategic and operational responsiveness.
- Anticipate problems and opportunities.
- Show clear lines of responsibility and authority.
- Maintain technical and management expertise in functions where needed.
- Provide flexibility for new program development.
- Have well defined channels of communications and decision-making.
- Have well defined areas of responsibility and accountability.

- Faciliate the capacity of its membership to exercise intelligence, imagination, and initiative in solving the organization's problems.

Strategic Planning Concept

In recent years, strategic planning has been recognized as an indispensable tool in organizational practice. Far-reaching changes in all aspects of societal processes have convinced most managers that continuing attention to environmental analysis and strategy formulation is directly related to organizational survival and effective performance. To carry out its role of adaptation, management must anticipate the challenges and opportunities that follow in the wake of change and translate its perceptions into meaningful organizational programs--and these must be acted upon.

A clear understanding of the purposes of an organization is necessary for effective performance. When goals and objectives are ill-defined, ambiguous or conflicting, behavior of the membership will probably reflect these influences. Coordinated activity is difficult to attain under such conditions. Modern organizational activity, which involves the coordination of ideas, technology, resources, and people, requires a systematic framework for conceiving and ordering the appropriate relationships.

Strategic planning is the framework that defines the essential character and posture of the enterprise and provides the guidelines for the action and allocation resources to achieve specified goals. The decisions related to these activities may include expansion or contraction of services in response to change in political, social, or economic conditions, or they may simply reflect technological developments. Significant changes in the basic objectives may cause readjustments in the skill mix, or the addition of new equipment and facilities. It is quite apparent that the strategies adopted by an organization play an important role in shaping the organizational structure.

The topic of organizational structure deserves special attention. Structure is generally visualized as the formal arrangement of institutional patterns through which enterprise is governed. Therefore, a sound structural design is a basic requirement for effective planning, coordination, and evaluation--management functions essential to the integration of the resources and operations of the organization. In designing organizations, the elements of structure that usually receive the most prominence are the following:

- Organizational goals and objectives
- Policies
- Technical operations
- Task definition
- Positions and roles
- Authority patterns
- Interpersonal and group relations
- Division of labor
- Departmentation
- Communication channels
- Decision networks.

The close relationships between the structural form of the organization and the strategies that the organization adopts in order to cope with the vicissitudes of its environment have been well documented.[6] In periods of rapid change, it is important that the structure of an organization be capable of intelligent and responsive action in dealing with the rapid emergence of new problem situations. Organizations responsible for protecting the environment must have this capability built into the structure if they are to keep pace with changing technological, political, social, and economic realities.

On the basis of its assessment of these critical factors, SRI emphasized the strategic planning function in the proposed new organization for the State of Ohio. The salient features of this concept are listed below.

- Strategic planning is responsible for setting the parameters for:
  - Environmental goals, objectives, and policy
  - Evaluation of alternative goals
  - Resource allocation
  - Organization structure
  - Operational criteria
  - Evaluation of emerging issues

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6. A. D. Chandler, Jr., Strategy and Structure (MIT Press, Cambridge, Massachusetts, 1962).

- Guidelines for change.

- The functions of the strategic planning process include:
  - Determination of guidelines for the strategic plan
  - Assessment of social, economic, and political factors
  - Assessment of technological trends
  - Setting of prevailing values
  - Identification of opportunities and threats
  - Identification of information requirements
  - Formulation of criteria for program evaluation
  - Assessment of organizational accomplishments.
- Organizational implications of strategic planning include:
  - Providing top management with policy alternatives.
  - Being staff rather than line oriented.
  - Emphasizing development of environmental plans to address public concerns rather than operations.
  - Enabling performance accountability in terms of environmental goals and derived objectives.

As part of the strategic planning concept, provision was also made to include a management control system capability to ensure that operations in all functional areas would be performed to support strategic objectives. This provision also makes possible better coordination between tactical and strategic planning. By establishing appropriate policies, procedures, and standards, programmatic data can be made available to monitor progress toward objectives and initiate corrective action when operational activities vary from planning guidelines.

Alternative Organizational Concepts

The SRI project team explored and evaluated several alternative organizational concepts as possible prototypes for use in designing the State of Ohio environmental entity. The principal features of each concept were carefully assessed, as were their advantages and disadvantages.

At one end of the spectrum, an organization structure can be founded on the idea of differentiation by resource category. This structure is prevalent in State environmental programs and is illustrated in Figure 1.

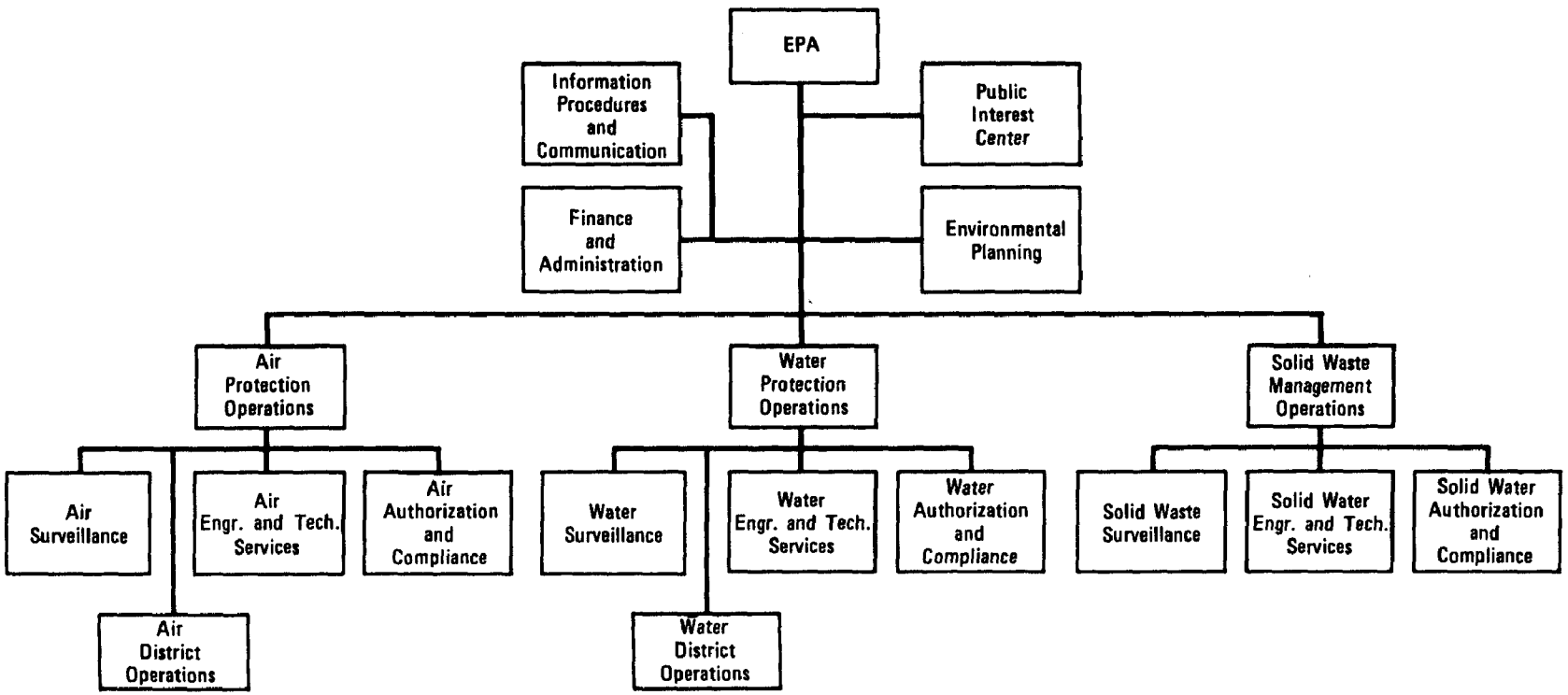

FIGURE 1 ORGANIZATION BASED ON RESOURCE CATEGORIES—I

An adaptation of this form, which introduces functional specialization at the supervisory level but retains resource category specialization at the operating levels, is shown in Figure 2. Figure 3 illustrates an organizational concept in which functional specialization is present at all levels of the organization. A brief summary of each of these alternatives is presented below.

Organizational Plan I: Resource Category Specialization

Resource category specialization structure (Figure 1) offers certain organizational advantages. Because of its similarity to the present organization, implementation would be relatively easier than for other alternatives and would require the least change from present arrangements. In addition, many of the existing organizational units would remain intact when transferred to the organization. Reorientation, retraining, and relearning would therefore be minimized. Not the least of the advantages is its close correspondence to the present federal EPA structure, which would ease the disruption in present contacts, technical relationships, funding, and collaboration between federal and State organizations.

Disadvantages of the resource-specialized organization include:

- Much of present redundancy of staff functions would be retained (particularly in field organizations, where significant numbers of positions are involved), thus increasing the apparent cost.
- Resistance to change would be significant, as old habits, methods, and commitments are retained.
- Each resource category would tend to become committed to its special area; interface problems between resources would be a source of conflict; and coordination, control, and interresource trade-offs would be difficult.
- Local agencies, health departments, and planning groups organized to deal with multiple environmental problems would be required to maintain contact with separate subagency programs in order to receive services.
- Career development paths for technical, professional, and staff personnel would be limited to single-resource channels, lacking any added breadth beyond present avenues.
- Information interchange, data based integration, and communication between categories would be difficult.

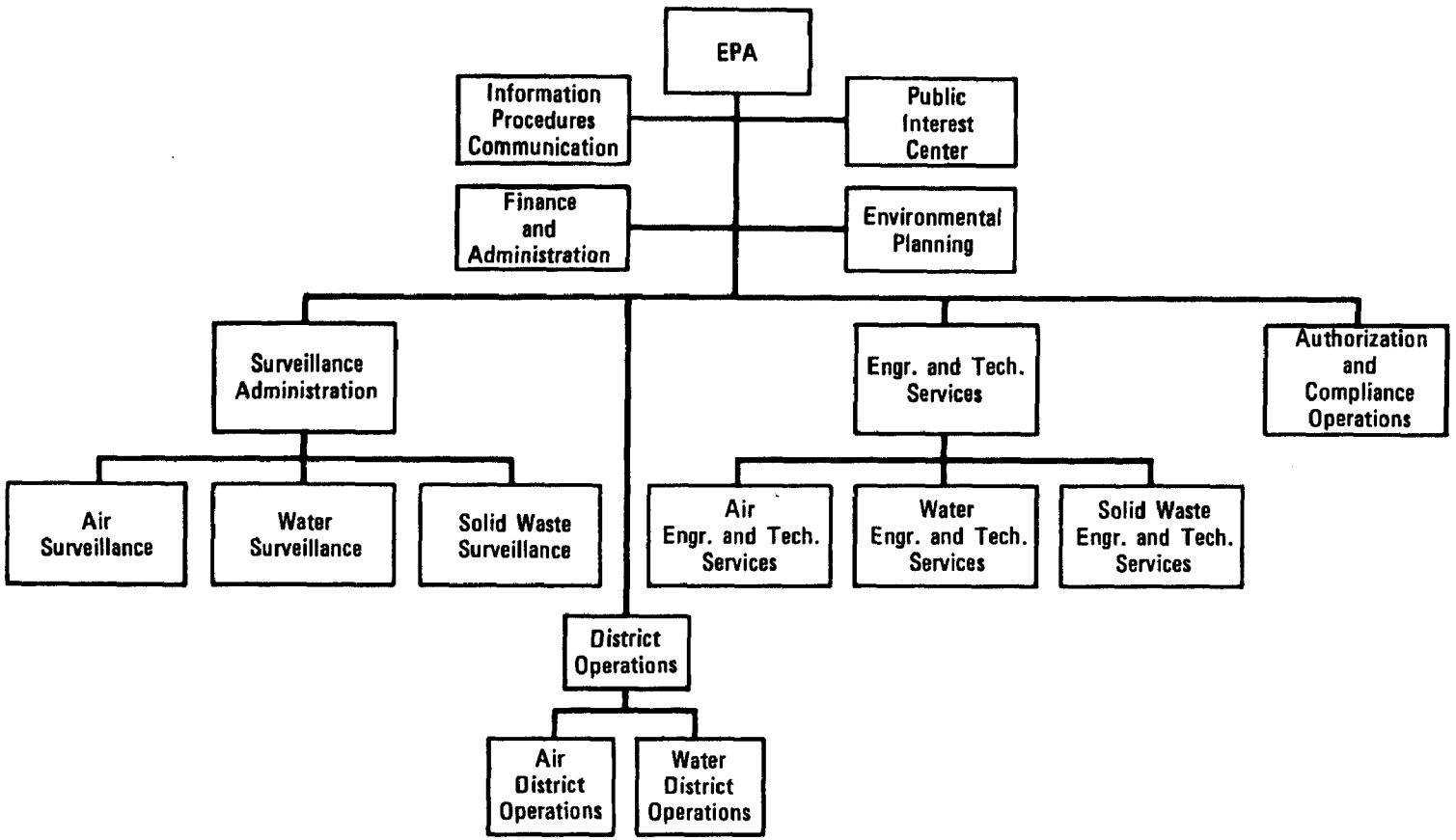

FIGURE 2 ORGANIZATION BASED ON RESOURCE CATEGORIES—II

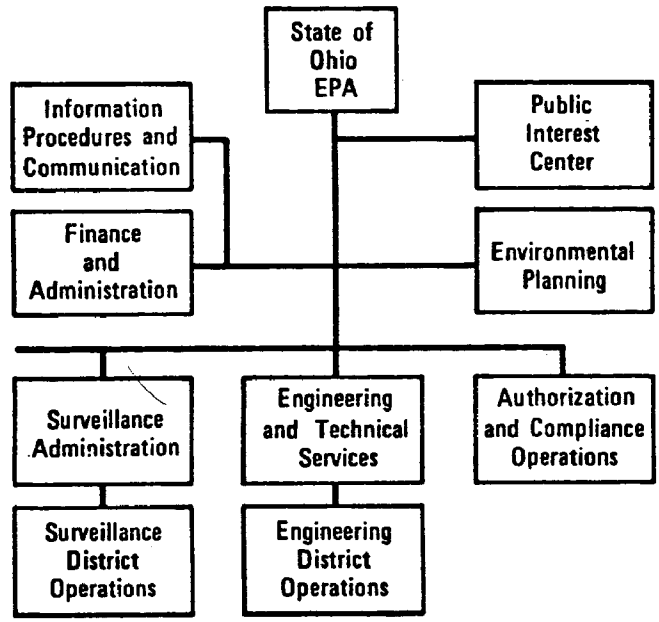

FIGURE 3 FUNCTIONAL ORGANIZATION

- Firmly established and heavily staffed programs (in the case of Ohio water programs) might tend to overwhelm the other emerging programs and make it difficult to attain a balance in level of importance between resources.
- The addition of new programs in the future would imply completely new organizational components with consequent redundancy.

Organizational Plan II: Combination Model

The organizational concept illustrated in Figure 2 represents a compromise between resource specialization and functional specialization, assigning the surveillance functions to a single middle-management component and technical services to a second middle-manager, while retaining resource specialization at the lower operating levels in the organization. Authorization and compliance are considered as a single functional organization dealing with all categorical programs in these concepts.

Advantages of this concept include the following:

- Since several of the present section-level and unit-level organizations could be fitted into this structure without major change, this concept would be relatively easy to implement.

- Interdisciplinary and interprogram career development paths can be more easily visualized than in the resource category specialization concept.
- Interprogram trade-offs and establishment of priorities between resources can be handled somewhat more easily at a lower organization level than in the resource category specialization concept.
- Relations between the federal EPA and State components would be somewhat clearer than in a purely functional organization.

Several disadvantages of this concept can be identified:

- This midspectrum structure would require more supervisory positions than would a strictly functional organization (such as that shown in Figure 3), and it would apparently have considerable position redundancy at the operating levels.
- Local sources would be impacted by separate requirements articulated by multiple subagencies (although these subagencies would be coordinated at a lower organizational level than in the resource category specialization concept).
- The addition of new resource categorical programs would imply the addition of several new subcomponents in the organization, with consequent redundancy.
- Information systems and data base development would not be markedly simpler than in the resource category specialization concept in view of the fragmentation of program elements at the detailed operational levels.
- Difficulties would be apparent in reorientation of middle-management to achieve interprogram balance and coordination.

Organizational Plan III: Functional Specialization

One form of pure functional organization is illustrated in Figure 3. This concept visualizes the utilization of surveillance skills--especially at the field and operating levels--to perform prescribed functions independent of resource categories. Similar broad utilization of skills across resource lines is visualized in the assignment of technical service personnel. Certain advantages of such a structure can be identified:

- Such a structure offers single-agency contact for all environmental problems at the local source level, consistent with many local agency organizations, thus presenting a more effective and efficient response to problems and opportunities.
- Greater flexibility is afforded strategically, structurally, and operationally, since new program requirements can be added and interprogram shifts in priorities can be made with only moderate rearrangements in staff and little disruption to management structures and relationships.
- Increased visibility to both the general public and the sources should signal the fact that "Ohio means business" in improving environmental quality. Public interest environmental groups should be responsive to this "total environment" organization, and communication with them should be improved.
- Broad, interdisciplinary career development paths can be clearly seen by incumbents and new candidates; this may be an important consideration in view of the apparent need for new professional and technical staff.
- More effective utilization of staff--particularly at the field level--reduced redundancy, and reduced overhead in managerial and clerical positions should result from this structure, along with better membership identification with overall environmental goals and less localism.

Several concomitant disadvantages should also be listed:

- This structure will require more substantial rearrangement of organizational functions than any other. Continuity of present programs will require greater resourcefulness and innovation to plan and achieve during the transition.
- It will be more complex and require advanced techniques to project budget and staffing requirements in the initial phase of implementation, as there is no prior basis of experience on which to base estimates.
- Staff retraining and orientation will be more extensive than with other alternatives if personnel--especially at the local field level--are to become qualified in multiple program disciplines.
- Habit may lead the general public, the State legislature, and federal agencies to expect separate reports of accomplishments and expenditures for each environmental category. This may imply the need for a true PPBS capability and resource accounting to individual programs on a routine basis.

V ANALYSIS OF PRESENT ORGANIZATION

Responsibilities for environmental protection in Ohio are presently assigned to seven boards and commissions, and two major departments, containing 5 offices and bureaus, 5 divisions, and 42 section-level and unit-level organization components that deal in categories of air and water pollution, water supply, and solid waste. Approximately 240 full-time employee positions are involved in the discharge of the State's responsibilities in these programs. General revenue fund expenditures totaled $3.59 million in 1971, and a total of over $90 million in capital investment bond funds were administered by these organizations.

Present Organizations

The principal components that have responsibilities for environmental protection within the Department of Health and Department of Natural Resources are shown in Figure 4. Although these two departments share major responsibilities are assigned to seven separate boards and commissions, of which the Directors of the Departments of Health and Natural Resources are members. Environmental protection responsibilities form only a part of the responsibilities assigned to the two departments, as the ODH has broad responsibilities in the entire spectrum

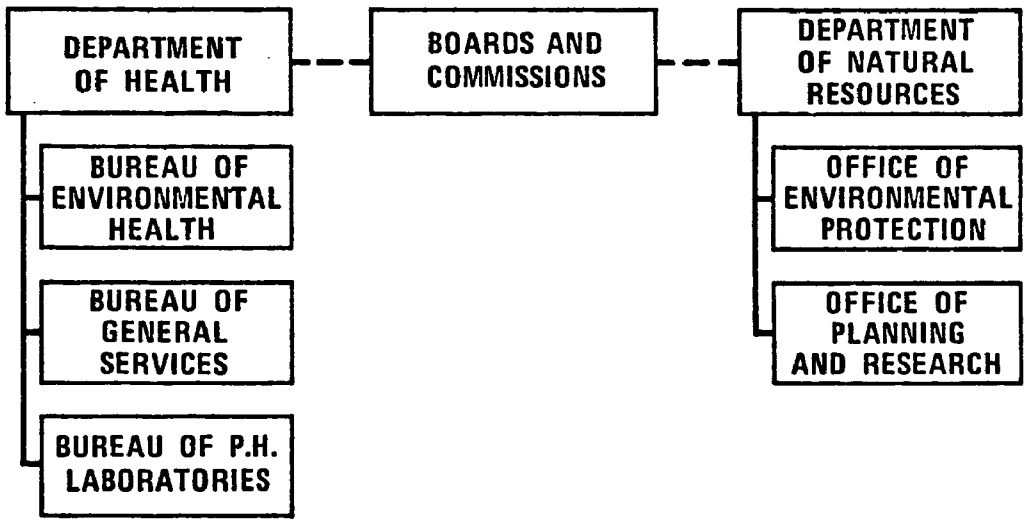

FIGURE 4 THE MACRO-STRUCTURE

of public health issues, while the ODNR is charged with a wide range of management and resource functions that are beyond the scope of environmental programs considered in this study.

As a general indication of the division of responsibilities between the ODH and the ODNR, water resource and water quality management planning, water inventory, and ambient quality problems are dealt with in the Department of Natural Resources. The Department of Health deals with the implementation engineering plans for water, as well as air quality and solid waste programs, and supports the enforcement actions of the respective cognizant boards.

Further details of organization of the ODNR components responsible for environmental programs are shown in Figure 5. The Division of Water, in the Office of Environmental Protection, is concerned with inventories of ground water and surface water and with monitoring the quantity and quality of underground waters, streams, lakes, and reservoirs. It responds to public requests for information related to water supplies and water management problems. It operates a few automated stream monitoring stations around the State, which collect and report hourly data on several key parameters.

Major planning responsibilities for water resources are assigned to the Water Planning Section of the Office of Planning and Research in the ODNR. Cognizance of interstate and international water plans is maintained through representation on boards and commissions, including the Ohio River Basin Commission, Great Lakes Basin Commission, and similar bodies. Investigation, research, and planning are performed in relation to flood plains and adjacent land usage. A major function of the Water

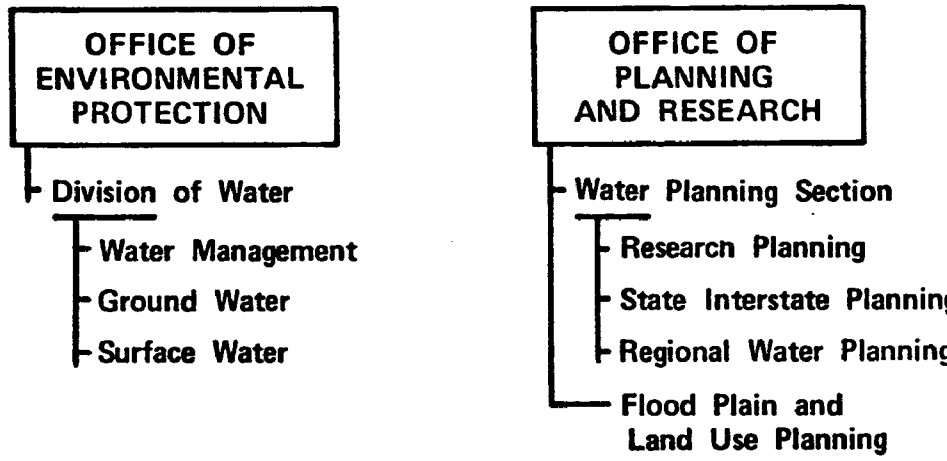

FIGURE 5 DEPARTMENT OF NATURAL RESOURCES

Planning Section is the development of detailed, long range water quality management plans for the five major regions of the State. In the past, this responsibility for regional planning has been discharged through detailed administration by the ODNR of contracts with private research and planning consultants who have provided the detailed field personnel and planning resources.

Figure 6 shows the subcomponents of the Department of Health having major assigned responsibilities for environmental programs. In the Bureau of Environmental Health, the Division of Sanitation is responsible for licensing, inspection, and enforcement of laws and regulations relating to all solid waste disposal sites, as well as for the training of operators. The Division of Engineering has general responsibilities for surveillance and data collection; review and approval of engineering plans and specifications for new facilities related to solid waste, water supply, sewage and industrial waste, and air pollution programs; and it provides technical assistance to the regulatory activities of the Water Pollution Control Board and Air Pollution Control Board. Four District Offices provide local representation to the Divisions of Sanitation and Engineering, and a central laboratory and four district laboratories support the Divisions in analyzing and testing samples collected by the field personnel. Both the field and central staff offer counsel and advice to local governments and industries on the several environmental programs in which they specialize.

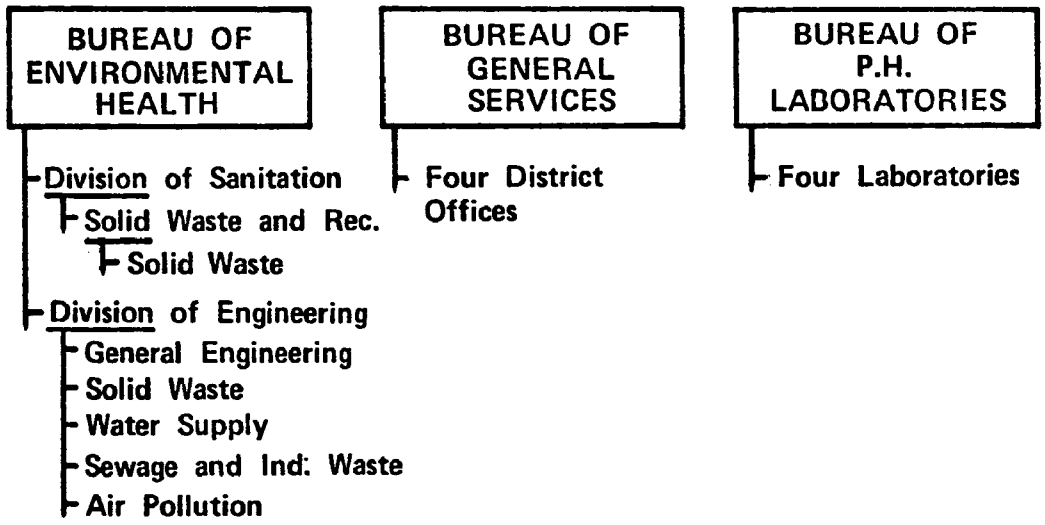

FIGURE 6 DEPARTMENT OF HEALTH

The Directors of the ODH and ODNR are members of several boards and commissions:

- Public Health Council
- Air Pollution Control Board
- Water Commission
- Water Development Authority
- Water Pollution Control Board
- Water and Sewer Rotary Commission
- Air Quality Development Authority

These boards and commissions have various assigned roles for environmental programs. Responsibility for the enforcement of environmental laws and regulations is vested in the Water Pollution Control Board and Air Pollution Control Board. Prior to enactment of SB 397, important funding and financing responsibilities and authorities were assigned to the Ohio Water Commission (for flood control programs),* to the Ohio Water Development Authority and the Ohio Water and Sewer Rotary Commission (for sewage and waste water treatment facilities), and to the Air Quality Development Authority (for air pollution control projects). The Ohio Public Health Council has judicial, legislative, and advisory duties in public health matters, including environmental health.

Functional Analysis

As of February 1972, the Departments of Health and Natural Resources contained a total of 239 employee positions assigned full time to activities falling within the scope of environmental protection. Of these positions, 22 were assigned to air pollution control and 10 to solid waste programs. The remaining 207 positions (86 percent of the total) were involved with various aspects of water supply and water pollution control. For purposes of analysis leading to a clear understanding of present organizational functions, a generalized set of functions was identified from present assignments and activities. Based on analysis of position descriptions, interviews with key personnel, and background information provided by the several study working groups, each of the

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* The Ohio Water Pollution Board was abolished by the provisions of Amended Substitute SB 397.

239 positions was assigned to one of the six descriptive functions, based on the major content of the work performed by each position. The distribution of positions by function is shown in Table 1. It should be noted that the administration function defined and applied in this analysis includes, in addition to general supervisory positions, such administrative functions as finance and budget control, information systems activities, and personnel administration functions, though many of these are represented by fractional portions of positions shared with other nonenvironmental-related responsibilities.

Table 1

PRESENT POSITIONS FOR DEPARTMENT OF HEALTH AND DEPARTMENT OF NATURAL RESOURCES

Functions	Positions	Percent of Total
Environmental planning	24	10.0%
Surveillance	62	26.0
Technical services	89	37.2
Authorization and compliance	7	2.9
Intergovernmental administration	7	2.9
Administration	50	20.9
Total	239	100.0%

Figures 7 and 8 indicate the distribution of positions within the major organizational components of the ODH and the ODNR, respectively.

The boards and commissions mentioned earlier have a variety of assigned responsibilities and functions. Their staff support is usually drawn from the appropriate departmental positions analyzed above, with their membership serving on a part-time basis. The Ohio Water Development Authority is an exception to this general situation, as it has a full-time, salaried staff of seven positions who are performing functions about equally divided between administration and intergovernmental administration.

FUNCTIONS PERFORMED	Solid Waste and Recreation	General Engineering	Solid Waste	Water Supply	Sewage and Industrial Waste	Air Pollution Control	District Offices	Laboratories	Total ODH Positions	Percent of Total
Environmental planning	1	*			1	*			2	1.2
Surveillance			*	1	3	7	25	16	52	32.5
Technical services	4	7	2	1	12	4	32		62	38.7
Authorization and compliance	*	*		2	2	3			7	4.4
Intergovernmental administration		*	*	*	*	4	2		6	3.8
Administration	2	4	1	3	2	4	10	5	31	19.4
									160	100.0

*Partial positions.

FIGURE 7 POSITIONS FOR DEPARTMENT OF HEALTH AS OF FEBRUARY 1972

FUNCTIONS PERFORMED	Water Management	Ground Water	Surface Water	Environmental Assessment	State/Interstate Planning	Regional Water Planning	Flood Plan and Land Use	District Offices	Total ODNR Positions	Percent of Total
Environmental planning	1	*		3	3	8	4	3	22	27.8
Surveillance	2	6	2						10	12.7
Technical services	2	8	5	10		*		2	27	34.2
Authorization and compliance	*								0	0.0
Intergovernmental administration	*				1				1	1.3
Administration	3	2		4	2	2	1	5	19	24.0
									79	100.0

*Partial positions

FIGURE 8 POSITIONS FOR DEPARTMENT OF NATURAL RESOURCES AS OF FEBRUARY 1972

Findings and Recommendations

The organizational and functional analyses summarized above resulted in the identification of several significant findings leading to key recommendations. These recommendations were important considerations in the development of alternative organizational designs and the assignment of functions within those organizational concepts. Major findings and recommendations in certain critical areas are summarized in the following paragraphs.

Policy and Planning Findings

Environmental planning activities are presently divided among the ODNR, the ODH, and the Ohio Water Development Authority. Some elements of planning are also present in activities carried out by the Water Pollution Control Board. Planning, as it now exists, is performed on a piecemeal basis:

- In the ODNR, planning is essentially contract monitoring of planning studies carried out by private consulting firms. There is no effective means for controlling the relationship between the organization and changing facets of its environment.
- In the ODH, comprehensive health planning is primarily concerned with developing local participation in activities and programs concerned with identifying health needs, determining priorities, and generating inputs into State plans. There is little or no linkage between planning and everyday operations.
- In the Ohio Water Development Authority, planning is primarily related to financing construction projects.
- Planning is not well articulated as a functional entity.
- Policy and planning activities are intermingled with routine, repetitive functions.

Policy and Planning Recommendations

It is recommended that an organizational structure be developed that centralizes the planning function and effectively insulates everyday operational processes from policy and future-oriented activities. Within this function, provision should be made for specialized sections responsible

for categorical resource planning, intergovernmental planning, research and development planning, socio-economic planning, and manpower planning.

Technical Operations Findings

Technical operations dealing with aspects of environmental quality are presently divided between the Department of Health and the Department of Natural Resources. The following observations were made:

- Multiple groups carry out similar or related functions in either the same general area (e.g., there are three sections on water quality) or in different categories of activities (e.g., there are separate sections dealing with municipal, local, residential, and industrial pollution control). In some instances, there is no clear-cut division of responsibility.
- Technical operations are complexly intertwined with non-technical activities.
- Technical operations are not coordinated with planning.
- Technical operations for short term (surveillance or enforcement) purposes are usually combined with longer term (monitoring) activities. The needs of short term programs are given precedence.
- Programs and results of measurements of individual environmental factors are not integrated and correlated.
- Technical operations data are disseminated randomly. Data collected from present measurements are not compiled and maintained as a basis for long term evaluation of environmental progress.

Technical Operations Recommendations

It is recommended that an organization be developed to:

- Integrate technical operations with regard to surveillance activities to avoid duplication in function and ambiguity in responsibility.
- Provide a separate function to perform information processing and maintenance of an environmental data base.

- Provide an internal center of specialized technical expertise in environmental disciplines.

Intergovernmental Processes Findings

In Ohio the inherent complexity of intergovernmental relationships and activities in the environmental protection field is intensified by a number of factors peculiar to the State agencies involved, the local governmental situation in Ohio, and the nature of the federal agencies and programs bearing on the area.

- There are over 2,500 political planning entities within the State of Ohio involved in environmental protection programs; these entities are governed by over 20,000 elected local officials. This number of entities and officials creates a climate of disunity towards environmental programs. Strong home-rule political and legal traditions encourage local resistance to direct State-local cooperation.
- The traditional independence of local government entities encourages them to oppose each other and the State in matters requiring regional cooperation for the attainment of common environmental objectives.
- Those intergovernmental relations that do exist between the State and local governmental entities have developed over different times to meet the needs of individual projects and programs, and they have continued to function haphazardly on a project-by-project, case-by-case basis.
- Different State agency personnel make uncoordinated decisions affecting intergovernmental relations.
- Three or four State agencies share responsibility for each program, and each is involved in the intergovernmental relations and activities of each project. There is no overall State coordination of these activities; so conflicting demands tend to be placed on local governmental entities with no responsible authority accountable to resolve these conflicts.
- Because of divided program responsibility, the State often finds itself in the position of having responded to pending federal legislation and regulations with disparate viewpoints that apparently express contradictory State policy.

- There is no unified method for assessing the needs, views, and positions of local units of government on pending State and federal legislation and no way of developing and sponsoring legislation on their behalf; so local units of government are left to shift for themselves on matters of vital interest.
- Because of divided responsibilities, the State has not been able effectively and comprehensively to administer the programs and projects of the several federal agencies involved in environmental protection.
- Ohio's State agencies lack the flexibility to rapidly and effectively respond to the changing character and administrative requirements of new and pending legislation that is responding to shifts in national priorities.
- Federal grant programs that are available to the State and local governments contain substantial funds for environmental protection tasks, of which the State cannot take advantage, primarily because of the lack of an organized institutional effort to meet the federal requirements associated with those programs.
- There is no single, responsible State focal point for coordinating the diverse intergovernmental activities and assuming accountability for the performance of programs related to environmental protection.
- A single environmental protection project or program commonly involves the interest of more than one federal agency or department. The State's present ad hoc method of coordinating the various and differing federal agency and department requirements for a single project or program places this burden on the several discrete local agencies involved, and it causes delays and missed opportunities for all governments concerned.
- The State is unable to evaluate the effectiveness of intergovernmental relations and activities because it lacks the planning necessary to determine the State's intergovernmental objectives with respect to environmental matters.

Intergovernmental Processes Recommendations

The following recommendations are made:

- Develop a specific organizational entity within the State's environmental protection organization that is charged with all aspects of intergovernmental relations, activities, and operations, and that insulates both the State's organization and its relationships with its local/regional governmental entities from the organizational disruption of uncoordinated action.
- Establish the function of intergovernmental planning in the organization's central planning function, insulated from the everyday processes of intergovernmental operations.
- Charge the intergovernmental planning function with responsibility for developing State policies, standards, and criteria for intergovernmental operations and institutional transactions.
- Charge the intergovernmental planning function with the responsibility for developing the goals and objectives of the organization with respect to intergovernmental operations, and with evaluating the organization's effectiveness in meeting those goals and objectives.

Manpower and Personnel Findings

Interfaces and communication between the Departments of Health and Natural Resources and the State Personnel Department are presently inadequate and pose serious difficulties. Some of these problems result from the lack of a well defined reporting relationship between the State Personnel Department and other operating departments. Other serious problems that may have an adverse effect on the operation of the recommended organization are the following:

- A shortage of experienced, qualified professional personnel exists at both the supervisory and operational levels.
- Basic employment and salary administration policies are outdated.
- Manpower planning, training, staff development, and career path planning are not being performed; consequently, the human resource management function is limited in scope and capability.

- Recruiting of high talent personnel will be difficult because, under present circumstances, professionals will find it difficult to perceive possibilities for upward career progression.
- Staff professionals are underutilized in both ODH and the ODNR; in many instances, engineers and scientific personnel are performing functions usually assigned to technicians or aides.
- The present organization is overcompartmentalized, and this condition serves to prevent appropriate interaction between professionals.

Manpower and Personnel Recommendations

An organizational analysis of the personnel function at the operating department level should be performed prior to staffing to ascertain whether or not some functions now performed at the Personnel Department level might be more advantageously executed by the operating department. If such is the case, appropriate steps should be taken to have these activities delegated to the operating department. Once that task is completed, the following additional steps should be taken:

- Personnel policies, practices, and procedures should be formulated and codified as a logical first step in developing a compatible personnel system.
- The basic functions of recruiting, placement, training, compensation, and career development should be included in the personnel section of the environmental protection organization.
- A skills survey should be undertaken to inventory and document the existing professional and technical capability of the staff in the ODNR and the ODH.
- A complete and systematic job analysis of all jobs that will be included in the new environmental protection organization should be performed in order to establish position requirements, grades, and equitable pay scales.
- A program should be established to develop and coordinate environmental education programs with the universities, colleges, and junior colleges within the State to ensure an adequate supply of professional, technical, and

paraprofessional environmental specialists to staff environmental programs administered by State, local, and private entities.

Information Support Services Findings

There is presently no single coordinated approach to providing the information support required for management of the technical and functional activities concerned with environmental problems.

- Fiscal management data related to budgets, commitments, and expenditures are supplied by the Department of Finance.
- Personnel data related to positions and employees are being planned by the Department of Personnel but will not provide all personnel data needs, as discussed above.
- A wide range of statewide health data, including environmental health, is being implemented by the Comprehensive Health Planning Service.
- The Department of Natural Resources is collecting automated stream monitor data via telemetry, but no analytical capabilities, history file, trend forecasts, or relationship to specific pollution sources have been included in the system.
- A data base that includes air quality data is being planned for the air protection program, but the system has not yet been implemented.
- The Department of Health is collecting raw data on water treatment and supply inspections and sample analysis, but no analytical, trend forecast, or history file capabilities are included.

Several different computer systems having different file-management techniques, programming languages, and data formats are being used in accomplishing the above:

- Expanded participation in the STORET system, developed by the Federal EPA, is being considered for water pollution control program applications.
- U.S. Geological Survey facilities are being used by the Department of Natural Resources.

- The Department of Finance on-line system is being used by Comprehensive Health Planning Service.
- The Department of Finance batch system is used for management data.

No single organization component has been identified as responsible for analyzing, designing, and implementing a single, coordinated information system.

No comprehensive procedures documentation is available that might standardize approaches to uniformity of data, control of forms used for recording data, procedures for data control, and the like.

Several different approaches are being planned for mathematical modeling using available data sources. The Miami Conservancy District has a mathematical model of a river basin for waste treatment plant planning; the Federal EPA is developing an air diffusion model; and the Federal EPA has a gross manpower model for air programs. None of these is in current use in Ohio State agencies.

Information Support Services Recommendations

A single, separate organization component with assigned responsibility for the following functions should be established:

- Providing a single, unified, consistent, and compatible service for systems analysis, systems design, program development, file on data base design and management, and software development.
- Developing uniform and effective user procedures, compatible forms design and control, and user orientation and training.
- Developing and implementing coordinated and effective data collection procedures, equipment, and operations.
- Designing and implementing a statewide system for data communication and voice communication to serve the total needs of environmental agencies.
- Providing access to a single, uniform, and compatible electronic computer system for data input, analysis, modeling, and retrieval throughout the environmental protection organization.

- Planning, designing, and implementing a comprehensive set of information systems employing a coordinated set of master files to serve the needs of all users and to permit retrieval and analysis of relevant data for such functions as planning, operations, and management analysis and control, in order to provide a single source of key environmental data for all functions and categorical programs.
- Illustrating the classes of data that might be included in a set of comprehensive master files. Figure 9 represents some of the interfile relationships that could be useful to multiple users of such an integrated file system.
- Promoting and supporting programs and analysis for mathematical modeling and other data analysis techniques.

Findings: Legal Services

Legal services for environmental protection activities are presently provided by personnel assigned to the State Attorney General and by small legal staffs in both the Department of Health and the Department of Natural Resources. The departmental legal staff personnel are also involved in legal matters for other departmental concerns outside the environmental field. As a result of this recognized dispersion of assignment of legal responsibilities, agreement has been reached by the affected parties for the provision of legal support to the various environmental components of the present organizations. The very modest legal resources that are now available to deal with environmental issues must, of necessity, be applied to the pressing day-to-day problems. Adequate time and resources have not been available for development and routine application of well developed precedents of case law that would provide for the consistent application of legal precedent in enforcement of environmental laws and regulations.

Legal Services Recommendations

It is recommended that the new organization include an adequate and qualified legal staff, responsible to both the Attorney General and the Director of the environmental protection organization. This legal staff should be assigned responsibility for providing legal counsel to support the organization's activities related to hearings, litigation, and other judicial proceedings. Legal representation should be considered for assignment as well to each district office to provide local legal support and services, coordinated by the central legal staff.

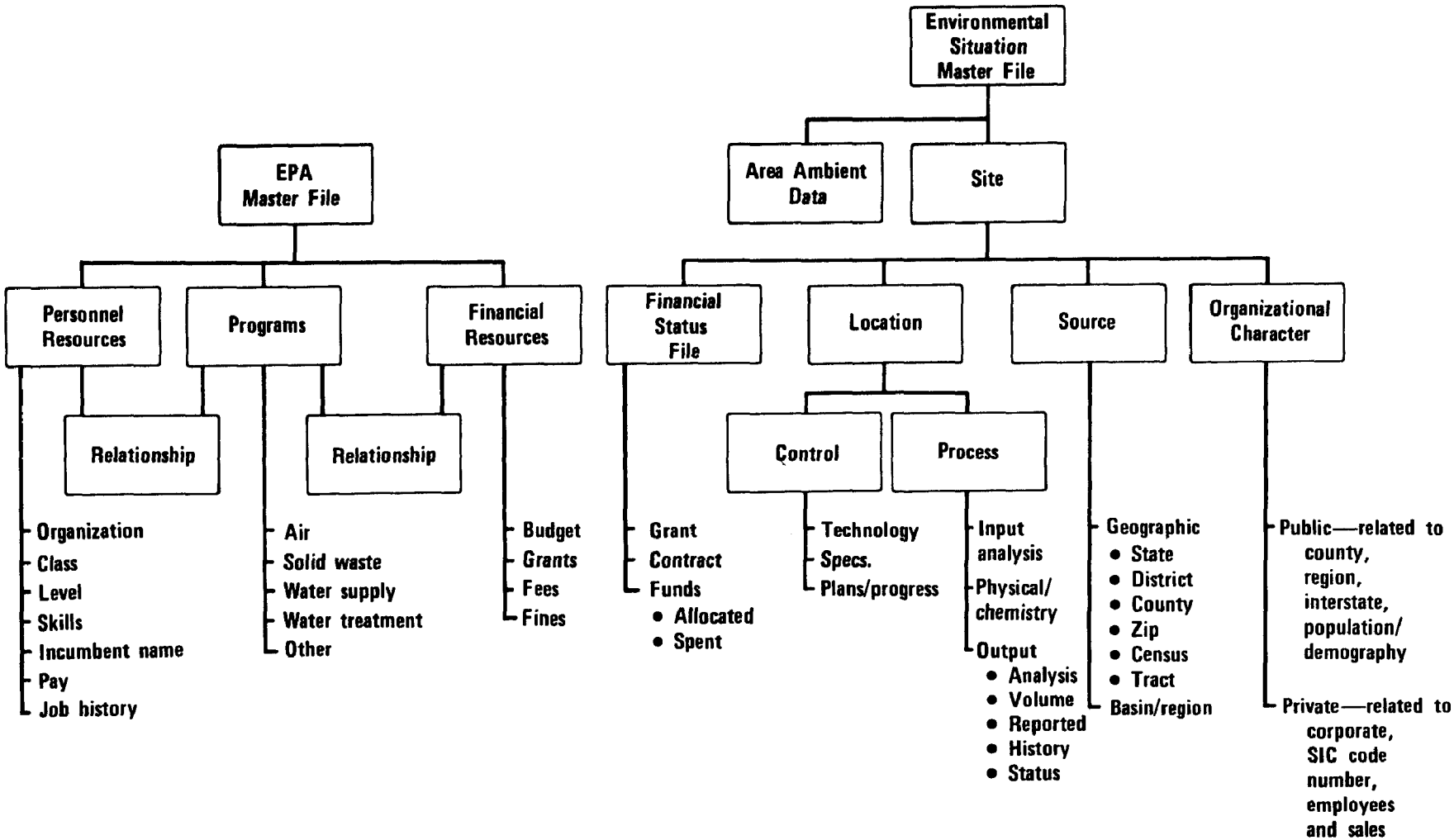


FIGURE 9 DATA SUPPORT SYSTEM FILE STRUCTURE

VI THE NEW ORGANIZATION CONCEPT

A detailed analysis of the functions performed by the organizational components encompassing the environmental activities of the State of Ohio revealed the existence of several dysfunctional areas. Many specific instances of situations requiring attention can be cited, but the following appeared to be the most representative, salient factors with significance for organizational design:

- Wide dispersion of planning functions.
- Overlap and redundancy in technical operations.
- Complex intergovernmental transactions and processing.
- A personnel structure lacking logicality, equity, and consistency.
- Inadequate manpower planning and development programs.
- Rudimentary and dispersed information systems.
- Insufficient legal support.

These general conclusions were reached after extensive analysis of current organization charts, individual position descriptions, search of existing records, and intensive interviews and discussions with key management personnel in the Department of Health and Natural Resources.

Based on the above analysis, the findings and recommendations discussed in detail in Chapter V were developed, and a new organizational concept was designed to remedy the structural problems identified during the diagnostic phase of the study. A discussion of the assumptions, criteria, and methodology underlying the design effort are covered in Chapter IV, which deals with design considerations. The final results of the design effort are presented in this chapter.

Goals and Objectives

The attainment of an organization's purpose depends on:

- The ability to translate its general philosophy and values into aims that are viewed by its diverse publics as appropriate.

- A structure that responds effectively and efficiently to external and internal conditions.
- A structure that responds effectively and efficiently to external and internal conditions.
- A management structure that provides guidance and incentives for the membership to contribute their imagination, skills, and commitment.
- An organizational environment that provides challenge, work satisfaction, and personal growth. Each of these factors plays an important part in the overall integration and strength of an organization.

In developing the framework for the goals and objectives of the proposed new organization for the State of Ohio, SRI drew upon the above principles as a basic foundation. The work of the Citizens Task Force on Environmental Protection served as a starting point for the project team's deliberations and strongly influenced the thinking that led to the development of the organization design. The contributions of each of the project work groups were also a critical source of input into the problem-solving process. Discussions were held with individuals from the different departments within the State government in order to provide a broad spectrum of viewpoints and interests in the hope that a reasonable consensus on environmental objectives would be reached. The SRI staff maintained communications with individuals and groups representing university, industry, conservation, and local government viewpoints to widen the scope of impact on the study. Many suggestions and ideas incorporated in the statement of objectives were derived from these diverse sources.

The goals and objectives for the proposed new organizational entity are stated as follows:

(1) General Policy

(a) Establish State environmental quality standards for air, water, and land that meet or exceed Federal specifications, criteria, and implementation schedules.

(b) Establish a comprehensive environmental planning function that can study and assess significant trends in both the external and internal milieu of the organization and thereby provide effective response to change through the medium of new program development for the conservation, protection, and upgrading of the State's environmental resources.

(c) Establish and maintain active public participation in improving the State's environmental quality.

(d) Establish a system of reciprocal intergovernmental cooperation to prevent discharges, emissions, or pollutants from causing degradation to the environment or waters of neighboring or adjacent jurisdictions; develop and maintain a cooperative relationship between the State environmental protection unit and local governmental entities to more effectively implement programs involving the abatement of air, water, and solid waste pollution, protection of domestic water supplies, and management of environmental quality.

(e) Perform the duties and responsibilities delegated to the State environmental protection unit and stand ready to assume other responsibilities in new areas of environmental concern that may be assigned through future legislative action.

(2) Operational

(a) Provide for the maintenance and protection of the State's environmental resources by establishing appropriate standards, and ensure compliance to the environmental rules and regulations by maintaining an effective surveillance and monitoring system.

(b) Control sources of emissions and discharges by implementing new technology and systematically upgrading the present environmental protection techniques and operations.

(c) Provide full environmental protection coverage to meet the varying needs of each section of the State by establishing regional organizational units to perform the necessary technical services in cooperation with local governmental entities.

(d) Establish a system of controls, permits, and certifications for the authorized use of the State's environmental resources that will ensure compliance with the State's law, standards, and regulations by all users.

(3) Administrative and Personnel

(a) Establish an administrative system that would provide executive direction and support to the operating elements of the organization, set priorities, allocate resources for the attainment of objectives, and maintain control over the use of human, technical, and financial resources.

(b) Maintain a professional organization by attracting and retaining competent personnel and by providing job and career continuity insulated from policy and political changes.

(c) Develop a professional organizational climate that is innovative and challenging and that gains the commitment of the membership by providing personal development, career growth, and opportunity to achieve and accomplish.

(d) Develop a systematic program for continuously assessing State needs for skilled manpower to staff local and private entities engaged in environmental activities.

(e) Encourage the growth of a State manpower pool with appropriate skills to meet the environmental technology and operations requirements of the State by increasing educational and training opportunities within the State.

The New Organization Structure

Based on the findings and recommendations derived from the analysis of operations within the two departments responsible for protection of the environment in the State of Ohio, a new organizational concept was proposed that would combine components from each of the departments into a new organizational entity. In conformance with the principles stressed throughout this report, the structure of the new organization was designed to support the goals and objectives enumerated in the preceding section of this chapter. The structural form chosen for the new concept is a derivative of the functional specialization model discussed previously in Chapter IV.

The organizing principle underlying the functional form of structure is to group similar operational activities under such functional headings as surveillance, technical operations, finance and administration, etc., which report to a centrally placed executive, in this instance, the Deputy

Director. The structural relationships characteristic of this organizational form are shown in Figure 10, and its essential strengths and weaknesses are summarized in Chapter IV.

The individual components that are included within the framework of the new organization are described below.

Executive Functions

Executive functions are performed by the Director and Deputy Director, assisted and supported by an office staff of two administrative assistants and four secretaries.

The primary responsibility of the Director is to guide and assist the Governor and the State Legislature in developing the basic departmental objectives. He is also responsible for developing the policies to regulate organization-wide operational processes, methods, and procedures. As chief executive officer of the department, he coordinates the activities of the Environmental Planning Service, the Public Interest Center, and the Legal Counsel and Representation, all of which report directly to him. Overall, the Director is fully accountable to the Governor and the people of the State of Ohio for the State's posture and position with respect to the environment questions.

The Deputy Director collaborates with the Director in developing the organization's policies, objectives, and goals, and he assumes responsibility for coordinating the activities of the six operating divisions that report directly to him. In his capacity as chief operating officer, he establishes the operating goals, methods, and procedures to ensure maximum operating efficiency and services commensurate with the best interests of the people of the State of Ohio. In addition, he supervises the Program Monitoring Staff, who control the processing of categorical resource programs through the various components of the organization and who assess the accomplishments of the organization.

Environmental Planning Service

The Environmental Planning Service develops and maintains long range strategic plans for the protection and improvement of the environment within the State. Such plans must also be systematically appraised to ascertain how they impact or are affected by other interstate and international programs and plans. Additional services provided by this unit

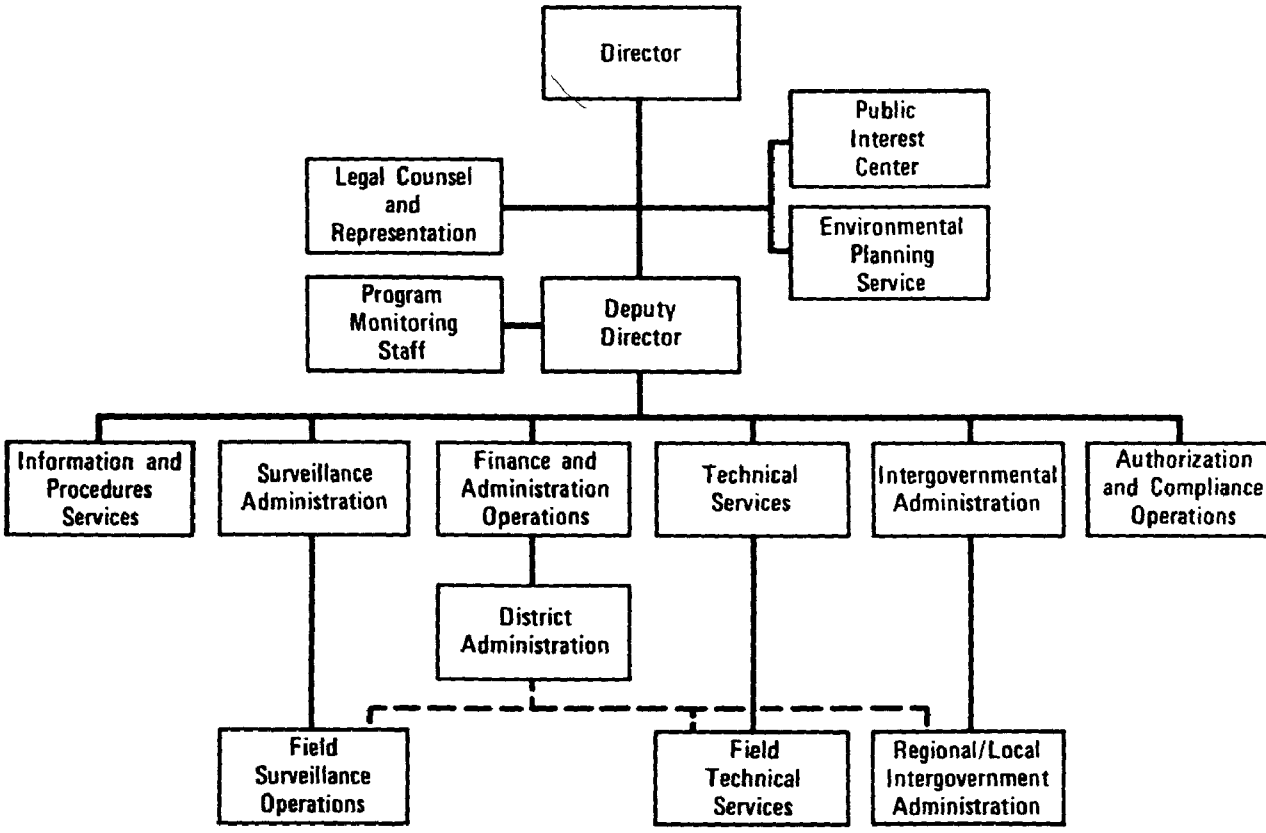


FIGURE 10 RECOMMENDED ORGANIZATION

include: developing and recommending standards for maintaining environmental quality; drafting legislation required to support such plans and standards; maintaining cognizance of research and development activities related to environmental improvement; supporting and maintaining continuing economic cost-benefit analyses of environmental impacts and improvements; and defining missions, objectives, and organizational relationships required to achieve such plans.

The Environmental Planning Service is a staff function that reports directly to the Director of the department. The proposed structure for this function appears in Figure 11, which shows the specialized units with the following capabilities:

- Resource Plans Development--This unit is concerned with evaluating basic data, establishing baselines for setting standards and criteria, assessing long term environmental quality implications of prospective actions, initiating new programs in resource evaluation, preparing and reviewing basin and metropolitan/regional water quality management plans, and providing support to other elements. In addition, this unit is responsible for formulating criteria for program evaluation.
- Intergovernmental Planning--This unit reviews, assesses, and evaluates pending and enacted State and federal legislation; develops needs and plans for financing; identifies problems and analyzes solutions; recommends State policy for local governmental entities; and proposes criteria for multijurisdictional coordination and development.

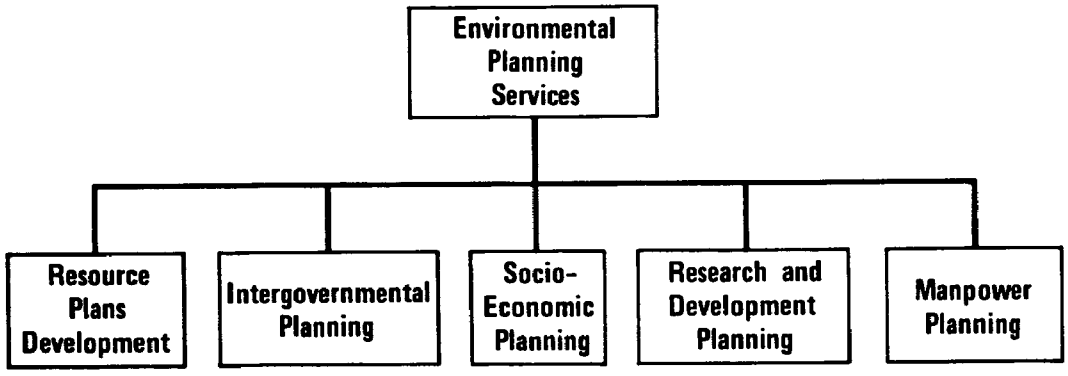


FIGURE 11 STRATEGIC PLANNING ORGANIZATIONAL SCHEME

- Socioeconomic Planning--This unit is responsible for maintaining information regarding socioeconomic factors relative to environmental planning, defining guidelines for including environmental considerations in development planning, evaluating the impact of alternative control strategies upon socioeconomic factors, and developing methods and procedures to measure the relative costs and benefits of prospective measures to improve environmental quality.

- Research and Development Planning--This unit is responsible for monitoring the state of the art and facilitating technology transfer, assessing the environmental effects of technological changes, establishing research into particular environmental quality factors, and serving as a focal point for coordination and dissemination of environmental research among researchers in Ohio.

- Manpower Planning--This unit is responsible for forecasting manpower needs relative to environmental programs, defining skill requirements and recommending training qualifications requirements, recommending manpower development programs, and coordinating manpower planning requirements with statewide manpower resources through programs such as CAMPS.

The Environmental Planning Service provides the department with the means of anticipating and controlling the rate of change through the use of systematic planning procedures. Innovation and new program development can be introduced with a minimum of disruption to on-going activities. The inclusion of a strategic planning capability, in addition to increasing flexibility and responsiveness, makes possible management by objectives and, with it, systematic evaluation of all aspects of departmental operations.

Public Interest Center

The Public Interest Center reports directly to the Director of the environmental protection organization. The primary concern of this function is to maintain two-way communication between the department and interested groups and individuals. As part of its responsibilities, this activity would be sufficiently staffed to be able to quickly and efficiently answer inquiries by the general public about environmental matters. It would also maintain close liaison relationships within the department to inform the appropriate organizational component of problems and

situations identified by the public. The Public Interest Center would be responsible for developing and maintaining a public communication program on activities of the organization and matters of environmental concern.

In addition to its communication and public participatory functions, the Public Interest Center would also play a vital role in environmental protection education. The Center would provide educational resource materials to support the development of educational programs by private and public groups and institutions. One of its vital functions would be to encourage and promote educational training, and retraining programs and curricula to meet statewide manpower training needs. The organizational schematic of the Public Interest Center is shown in Figure 12.

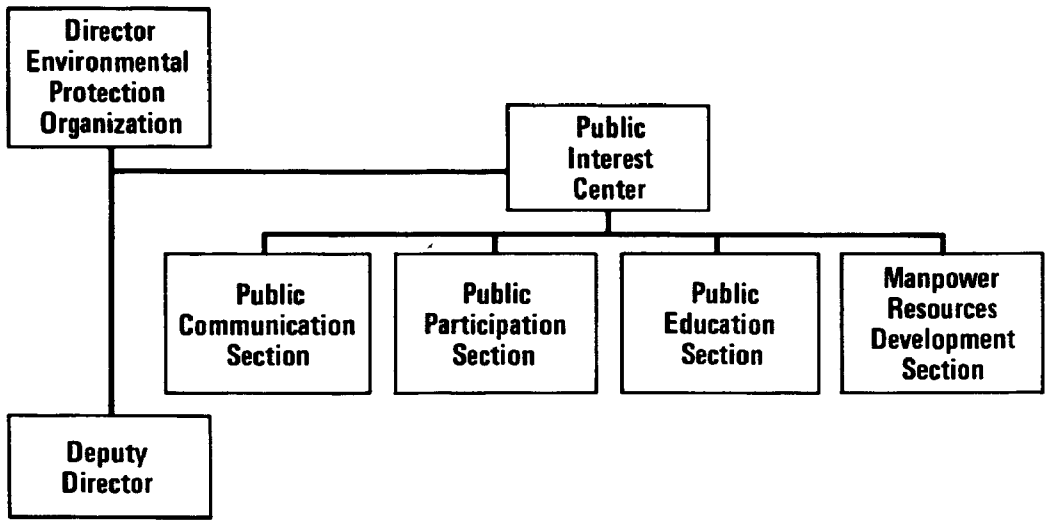


FIGURE 12 PUBLIC INTEREST CENTER

Legal Counsel and Representation

Legal Counsel and Representation is comprised of a staff of legal professionals who provide the environmental protection organization with legal counsel and appearance for all administrative hearings and adjudications that affect the legal responsibilities of the organization. These services include the handling of all appeals from actions of the organization before administrative tribunals and other judiciary bodies. The legal staff also renders legal counsel and advice on formal and informal rules and procedures with respect to their legal and procedural sufficiency. The overall aim of the staff is to assist and support the environmental protection organization in maintaining a strong and effective

enforcement and compliance posture with respect to matters under its jurisdiction. Successful conduct of environmental programs also requires representation and legal support for all organizational activities and functions concerned with regulation and enforcement of environmental standards in addition to the customary executive agency representation.

The specific responsibilities and activities of the legal staff are listed below.

- It prepares the environmental protection organization's legal cases with respect to administrative hearings adjudicating permits, which the organization has the authority to issue or deny.
- It appears for the environmental protection organization in all such cases.
- It prepares the environmental protection organization and/or the State's cases in actions with respect to omissions or failures to file applications for permits and, at the request of the Director of the organization, brings the action and provides legal representation in the case.
- It prepares the environmental protection organization and/or State's case for violations of permit conditions and, at the request of the Director, files such legal action as is necessary and appropriate and provides legal representation for the Director in such actions.
- It develops rules and procedures for use by the Authorization and Compliance component in its administrative proceedings. It drafts standard forms, contracts, agreements and other instruments in support of the Intergovernmental Administration component's activities.
- It prepares the environmental protection organization's legal case for cases of administrative and judicial appeals, and it provides legal representation for the Director and the organization in all such cases.
- It provides legislative research, drafting, and analysis services to other components of the environmental protection organization with respect to federal, State and local legislation, rules and regulations, and guidelines material.
- It advises the Director, or his designee, and other heads of the organization's components, as to the legal sufficiency of policies, standards, and courses of action.

- It provides general guidance material to Surveillance Administration and to Technical Services with respect to procedures to be used in gathering and analyzing technical data that is to be used, or may be used, as evidence in administrative and/or legal proceedings.
- It approves the form of legal instruments, contracts, grants, and other agreements to be executed between the environmental protection organization and State, federal, and local/regional governments and entities, and private consultants.
- It provides legal assistance and counsel in negotiations between the environmental protection organization and persons or governmental entities leading to compliance with environmental protection standards.
- It prepares the legal research necessary to support the organization's legal positions with respect to matters within its jurisdiction.
- It maintains constant surveillance and analysis of current case and statutory law, and it prepares opinions on the effects of changing case law on the policies, procedures, standards, etc., of the organization when the cases so warrant.

Program Monitoring Staff

The Program Monitoring Staff reports directly to the Deputy Director and is responsible for maintaining schedules for processing of all categorical program work in the various components of the organization. This unit is necessary because federal programs are presently funded in terms of resource categories. For effective control, identification of specific elements of a total program is often required. This can be accomplished by maintaining status records of work in progress for all categorical programs. The staff also serves as expediters and negotiators on questions of schedule conflict and adjustment. The work of the staff will be facilitated by the maintenance of schedules, logs, and records pertaining to significant inquiries or problems relating to categorical projects and programs. To aid the Deputy Director in coordinating and assessing the operational performance of the organization, the Program Monitoring Staff keeps him constantly apprised of any significant problems that arise in regard to accomplishment of goals, schedules, work loads and program requirements, and decisions between components of the organization. Figure 13 shows a diagram of the Program Monitoring Staff, depicting the subunits and showing relationships with the rest of the organization.

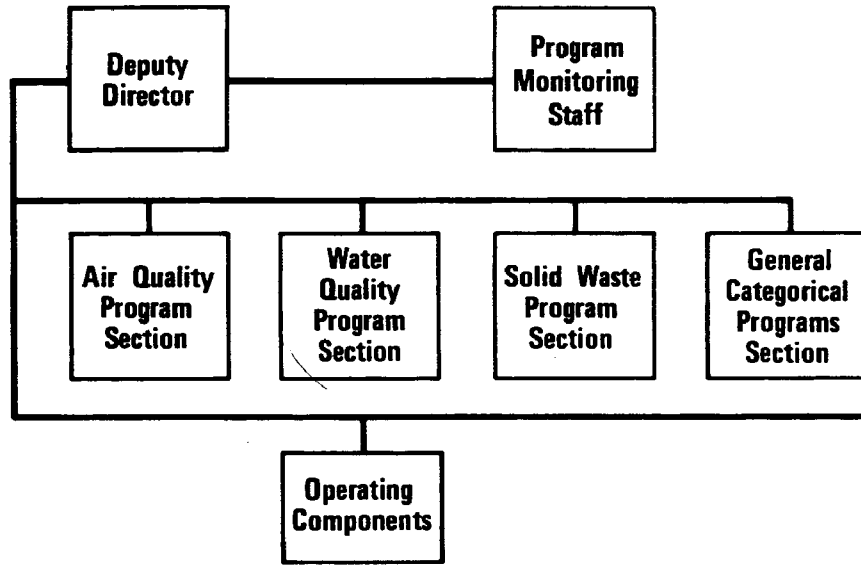


FIGURE 13 PROGRAM MONITORING ORGANIZATION

Information and Procedures Services

Information and Procedures Services is one of the six operational components reporting directly to the Deputy Director. The basic objective of this function is to provide information support services to all functional components of the organization. A significant aspect of this work would be the development and implementation of a comprehensive, integrated environmental data base. This projected system would be designed to serve the interfunctional data needs with respect to contributing sources and the general environmental situation for all resources, i.e., air, water, and solid waste. This service would also be responsible for processing and maintaining technical data for Surveillance Administration and for Technical Services. To control these activities, the unit will be responsible for developing uniform user procedures and providing user orientation and training.

A capability would be developed and maintained for designing and implementing all automated data collection, retrieval, and analytical systems, including program routines, to accomplish the technical and management information needs of the agency. Also within its scope is the responsibility for designing and implementing a statewide system of data communication and voice communication to serve the various elements of the agency. It would also be responsible for providing a records retention and records management system for the organization. An organizational schematic is shown in Figure 14.

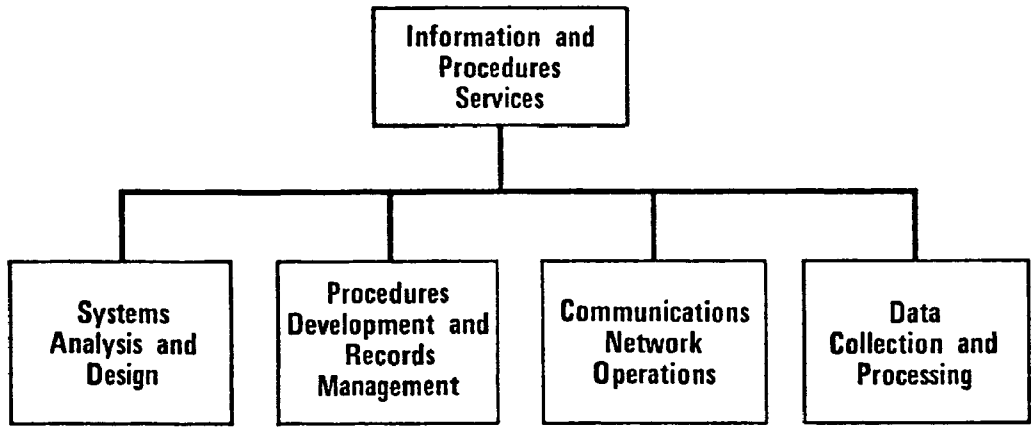


FIGURE 14 INFORMATION AND PROCEDURES ORGANIZATION

Surveillance Administration

Surveillance Administration performs one of the critical operations in the conduct of the environmental protection mission. It has the responsibility for maintaining a consistent and up-to-date picture of the total environment situation in the State. To carry out this mandate, the division is separated into two distinctly different operations: a headquarters unit, and field surveillance services performed in the district offices, as shown in Figure 15.

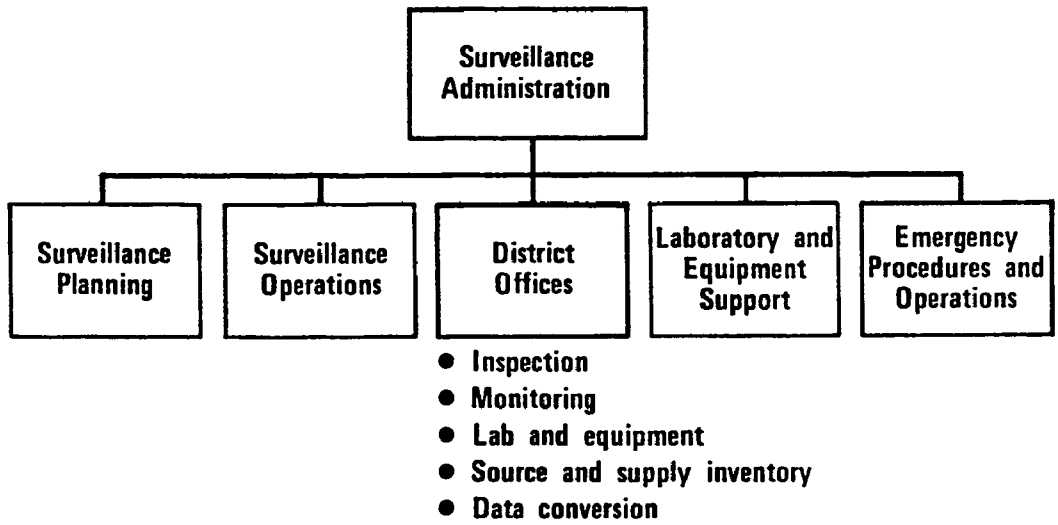


FIGURE 15 SURVEILLANCE ORGANIZATION

The headquarters staff maintains cognizance over all surveillance activities in the organization. In addition to providing administration services for the division, the staff is responsible for developing plans and procedures for collecting surveillance data for displaying and reporting purposes. It is also responsible for administering, scheduling, and supervising field operations. In this capacity, the staff receives and assigns for investigation all complaints emanating from the different parts of the State. It is responsible for developing and implementing emergency procedures when critical situations occur. The division also supports the enforcement actions carried out by other operating components. The headquarters staff is made up of the following sections:

- Surveillance Planning--This section is responsible for establishing surveillance objectives for each resource category and site, and it translates these objectives into program objectives. It designs surveillance techniques, procedures, equipment requirements, and reporting systems to achieve program objectives. A key duty is to communicate changes in recommended or approved programs to operating components and to maintain an accurate documentation service. It proposes the guidelines and standards for the operation and maintenance of surveillance activities performed by municipal and other public agencies. It works closely with Information and Procedures Services to design and develop techniques for displaying and reporting environmental information.

- Surveillance Operations--This section analyzes existing and proposed programs to identify facilities and personnel required to accomplish program objectives, and it allocates resources when appropriate and within established priorities. It also establishes field and laboratory assignments and schedules and monitors the results.

- Laboratory and Equipment Support--This section develops the plans and specifications for laboratory facilities and equipment to meet existing or projected needs of the different surveillance programs. The certification of facilities, equipment, personnel, and quality standards for conducting analytic processes fall within its purview. It also develops the procedures and techniques used is sample gathering for laboratory analysis, and it maintains the standards necessary to support testimonial evidence.

- Emergency Procedures and Operations--This section develops, documents, and communicates comprehensive plans for prompt response to environmental incidents that might affect public health or constitute a substantial threat to the environment. In an actual emergency, this section initiates emergency actions and draws on

whatever State and local government resources are necessary to protect public health, safety, and environmental integrity.

Field Surveillance Operations maintains continuous surveillance over all water supplies, water pollution, air pollution, and solid waste sources and sites within an assigned area. It also samples, analyzes, and reports on the quality and quantity of water supplies, water and air pollution emissions and effluents, and solid waste disposal operations, and it maintains the laboratory and equipment to support these activities. In addition to investigating all complaints involving sources, this function reports on all aspects of the environmental situation in its territory. It is also responsible for monitoring the progress and quality of construction work on new or changed environmental facilities in its territory. The overall field operation is composed of the following sections:

- Field Inspection Operations--This section performs the routine and special inspections of all assigned sources and sites of water supply, water pollution, air pollution, and waste disposal, using specified procedures and schedules. Its responsibilities include collecting samples of emissions, effluent, and in-process materials either for analysis on-site or for transmission to designated laboratories. It makes comprehensive technical reports of the findings of inspections and sample analyses in an appropriate format and transmits this data to the designated data collection agency or user. It is also responsible for inspections and reports regarding the status, progress, and quality of construction of environmental facilities when requested to do so by Authorization and Compliance Operations. Surveillance activities performed by municipal and other public agencies are periodically evaluated for compliance with the guidelines established by this agency.

- Field Monitoring Operations--This section installs, operates, and maintains automated continuous monitoring equipment to measure environmental quality at designated sites within an assigned territory. These sites may be fixed or mobile.

- Field Laboratory and Equipment Operations--This section installs, operates, and maintains analytical laboratories that perform qualitative and quantitative analyses of samples submitted by Field Inspection Operations or other agencies. The technical reports of these findings are then transmitted to the appropriate agency or user. This section is responsible for maintaining performance standards for equipment and personnel both for certification and for providing data to be used as evidence in hearings and legal actions. Also, it maintains complete and accurate records of all laboratory procedures and findings, documented as to source and site.

- Field Source and Supply Inventory Operations--This section plans, schedules, and conducts inventory studies of underground waters, surface waters, solid waste activities, and air quality within the guidelines developed by the Environmental Planning Service and reports the findings to the requesting agency or organizational component.

- Field Clerical and Data Conversion Operations--This section provides stenographic and clerical support for all field surveillance operations in the assigned territory. These services include correspondence, report transcription, and record maintenance. This section also is responsible for providing data conversion/ data input operations under procedures specified by Field Surveillance Operations and Information and Procedures Services. The unit maintains personnel schedules and transportation facilities for all personnel assigned to the Field Surveillance Operation in a designated territory.

Technical Services

Technical Services is an operational division that reports directly to the Deputy Director. Its primary mission is to plan, design, and implement technical programs to achieve environmental quality standards in a cost-effective manner while operating within specified technological and economic restraints. It provides the environmental organization with the major part of its technical expertise and engineering capability. Divisional services are performed by a well rounded headquarters staff and a small field contingent located in each of the district offices. Organizational relationships are delineated in Figure 16.

The headquarters staff maintains cognizance over all engineering activities in the organization. The staff offers engineering counsel and consultation to public and private agencies on technical problems relating to the environment. It maintains records relating to past equipment performance and projects statistics on future performance. Technical Services reviews all proposals and plans for improvements in control facilities, siting, or operations, and it recommends conditions or variances in authorizations to construct or modify and permits to operate. The headquarters staff consists of the following operational sections:

- Impact Evaluation and Planning--This section converts data received from Surveillance Administration into a continuously updated inventory of sources and ambient conditions in the State. Based on this data base, the section generates a forecast of probable environmental quality levels that may result from man-made changes

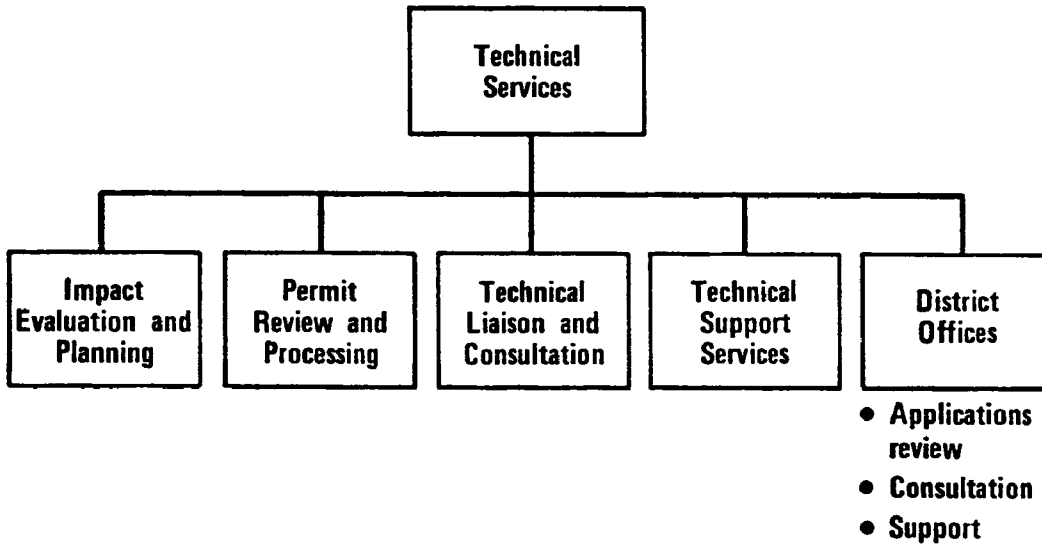


FIGURE 16 TECHNICAL SERVICES ORGANIZATION

or natural fluctuations in seasonal phenomena. It also reviews impact statements and assesses their accuracy with respect to known and foreseen changes in environmental conditions. When declarations of emergency are contemplated, this unit serves as a technical consultant.

- Permit Review and Processing--This section is responsible for reviewing the engineering plans for proposed environmental facilities, including feasibility studies on environmental standards, time schedules, and social and economic impact of the construction on federal, State, and local interests. The section draws support from other sections within Technical Services and coordinates its efforts with external agencies and other divisions in the organization.

- Technical Liaison and Consultation--This section maintains an experienced and highly qualified engineering staff to provide counsel and advice to public and private agencies in the planning and design of environmental facilities. It also engages in public discussion on questions of environmental significance and provides objective evaluation of alternatives that are made available to all constituencies.

- Technical Support Services--This section provides and maintains a technical library of documents, books, journals, and reports and other technical reference material that may be required to support the on-going work. It also supplies auxiliary services, such as drafting, art work, and other support functions related to report production. It is responsible for providing clerical, stenographic, and record maintenance services.

Field Technical Services is responsible for providing technical support for all environmental problems occurring within an assigned territory. These services include initial review of applications for authorization to construct or modify facilities and permits to operate; recommendations issued from the field are forwarded to headquarters for appropriate action. A significant part of the field engineering work load consists of rendering assistance to the surveillance and enforcement functions in the performance of their duties. This involves a considerable amount of liaison and coordination effort. Technical support and consultation are also furnished to local agencies whenever their construction programs involve questions of siting and environmental impact. All field operations are centered in the district offices.

Finance and Administrative Operations

Finance and Administrative Operations is responsible for controlling and accounting for the fiscal resources and assets of the State and other sources as they are applied to environmental programs. This division develops a fiscal plan to match the environmental plans of the organization. In performing the controlling function, the division administers the fiscal budget and provides responsibility accounting to the operations and services. Other financial support furnished includes the administration of executive budget funds, tax exempt statutes applying to environmental improvements, revenue bonds, and the management of the purchasing and contract functions. Organizational relationships are shown in Figure 17.

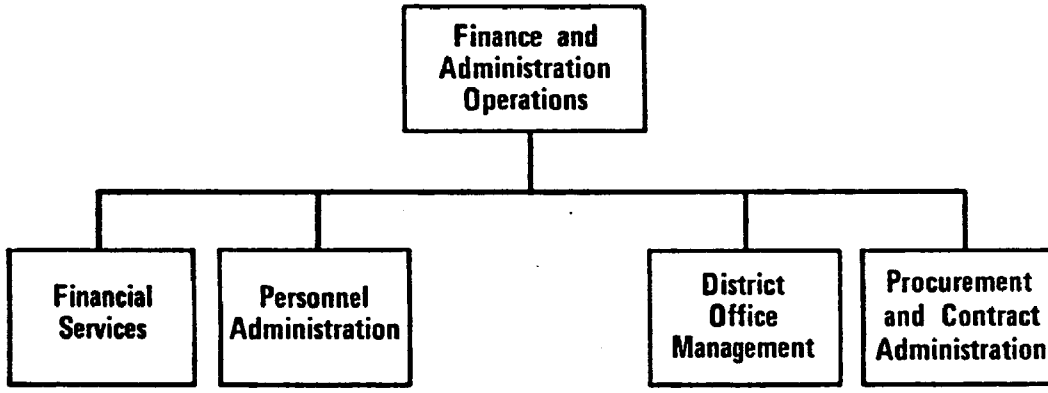


FIGURE 17 FINANCE AND ADMINISTRATION ORGANIZATION

The personnel management function is a concomitant responsibility assigned to Finance and Administration Operations that includes recruiting, placement, compensation, training and development, and other programs related to attracting and retaining a competent work force. Manpower planning, however, has been placed in the Environmental Planning Service to facilitate the integration of all planning functions. Close liaison between the two operations is required on all matters pertaining to human resource utilization.

Finance and Administration also serves an important administrative function in the district offices. Under the proposed new organizational concept, this division would be responsible for supplying field personnel to service the administrative needs of the district offices. It must be emphasized, however, that administrative field personnel would have no jurisdiction over field technicians assigned to district offices from the other operating divisions. These individuals would report to their own field supervisors who, in turn, would report to their superiors in headquarters. All technical direction in the field would come from Surveillance, Technical Services, and Intergovernmental Administration. These specific organizational relationships are shown in Figure 18.

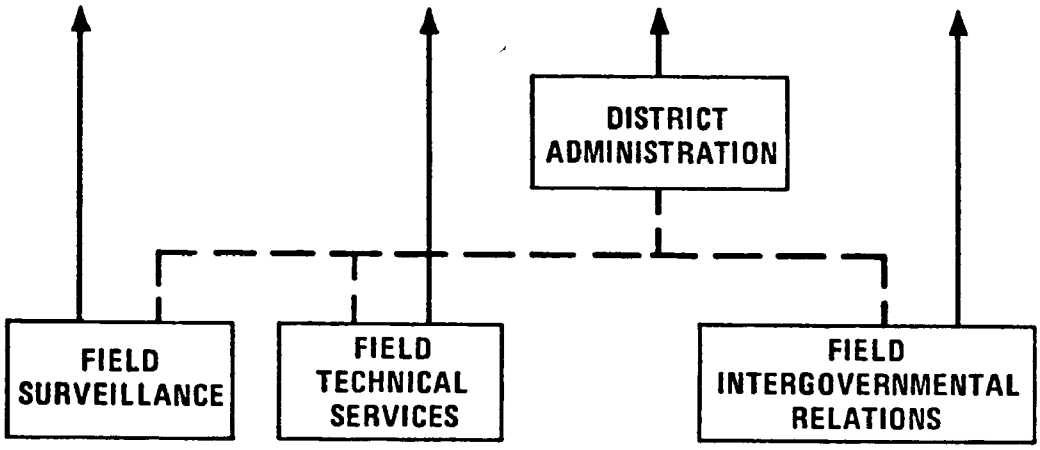


FIGURE 18 FOUR DISTRICT OFFICES

District Administration would be primarily concerned with facilities management and "housekeeping" duties. Its responsibility would be to keep the office running smoothly and take care of all nontechnical details to enable field personnel to devote as much time as possible to technical problems. In addition, the field administrator would serve as the organization spokesman in the field and would route calls, inquiries, and information to the appropriate individuals. He may be called upon to represent the organization at local public functions to explain the organization's point of view or posture on certain issues.

Intergovernmental Administration

Intergovernmental Administration as a structural component does not exist in the present organization. This new division has been developed to fill a void in present operations, i.e., the lack of a specific entity charged with the responsibility for integrating and coordinating all aspects of intergovernmental relations. Under this new concept, federal State, and local government activities are centralized to provide improved management control, to establish specific group and individual accountability, and to develop guidelines for evaluating the effectiveness of this function in meeting its goals and objectives.

The increasing importance of intergovernmental coordination in coping with the problems of environmental protection requires improved planning, communication, and decision-making. The new organization concept contends with these realities by establishing an intergovernmental planning section in the central planning function. This added capability provides the organization with the means for responding flexibly to the changing character of new legislation and shifts in national and State priorities.

Intergovernmental Administration has been designed to achieve the following organizational ojectives:

- To assure that State and federal policies, laws, and regulations are effectively executed by local and regional governments and entities within the State of Ohio.
- To represent the State on interstate and international Commissions.
- To coordinate the policies and activities of the State's environmental protection organization with other State agencies and programs.
- To provide a single point of contact with respect to State, federal, and local programs, policies, and criteria.
- To coordinate and rationalize State and federal funding of environmental programs and projects of local/regional governments and units within the State of Ohio.

Figure 19 shows the structure proposed for the Intergovernmental Administration organization in detail, indicating the sections and field units that would be included in the operation. Figures 20 to 24 are descriptions of each of the three sections and indicate the kinds of interactions and activities that are likely to occur. A more complete summary of the responsibilities and activities of each of the sections is described below.

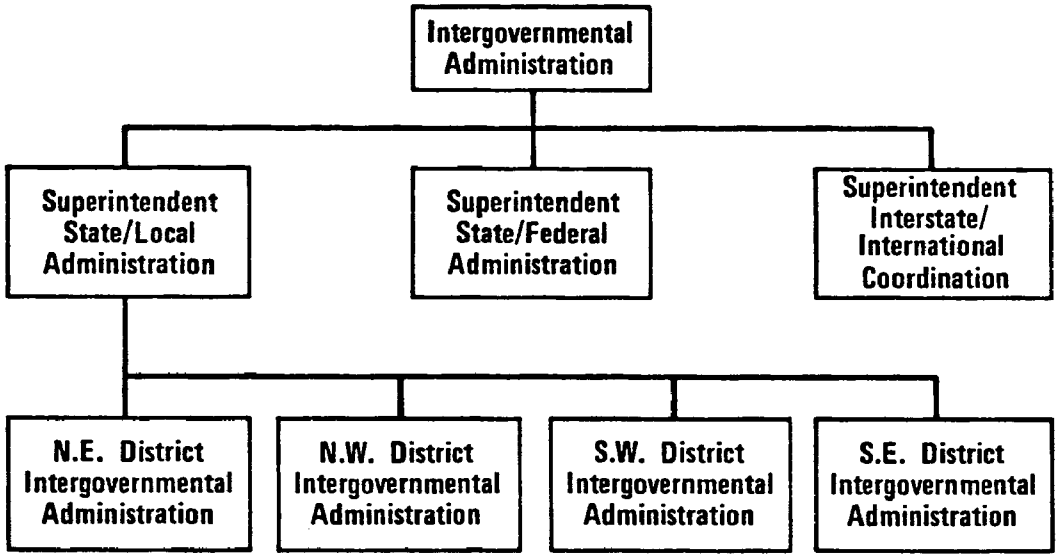
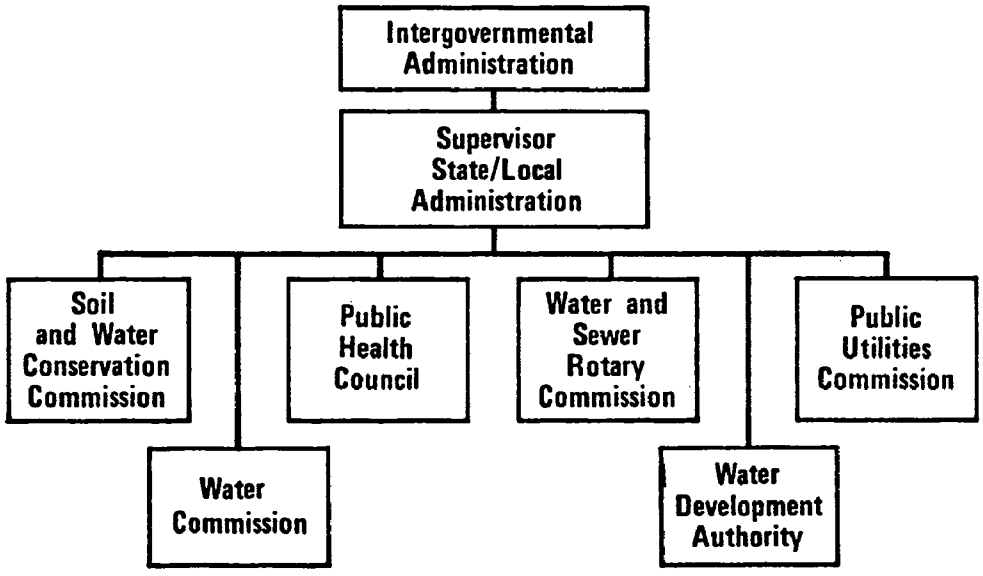


FIGURE 19 INTERGOVERNMENTAL ORGANIZATION



NOTE: Under the provisions of Amended Substitute S.B. 397, the Ohio Water Commission was abolished. The establishment of the Ohio EPA necessitates interfaces with several other State agencies, including the parent organizations and newly created commissions.

FIGURE 20 STATE/LOCAL ADMINISTRATION SECTION—STATE AGENCIES

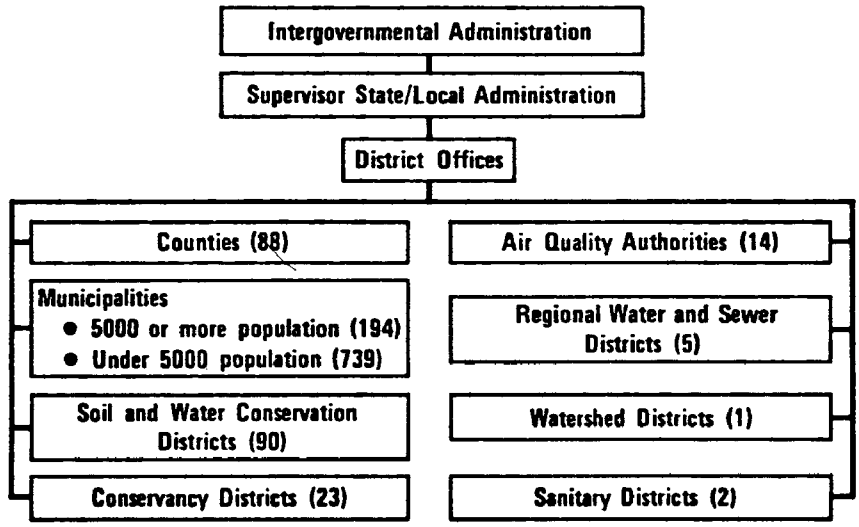


FIGURE 21 STATE/LOCAL ADMINISTRATION SECTION—LOCAL GOVERNMENTS

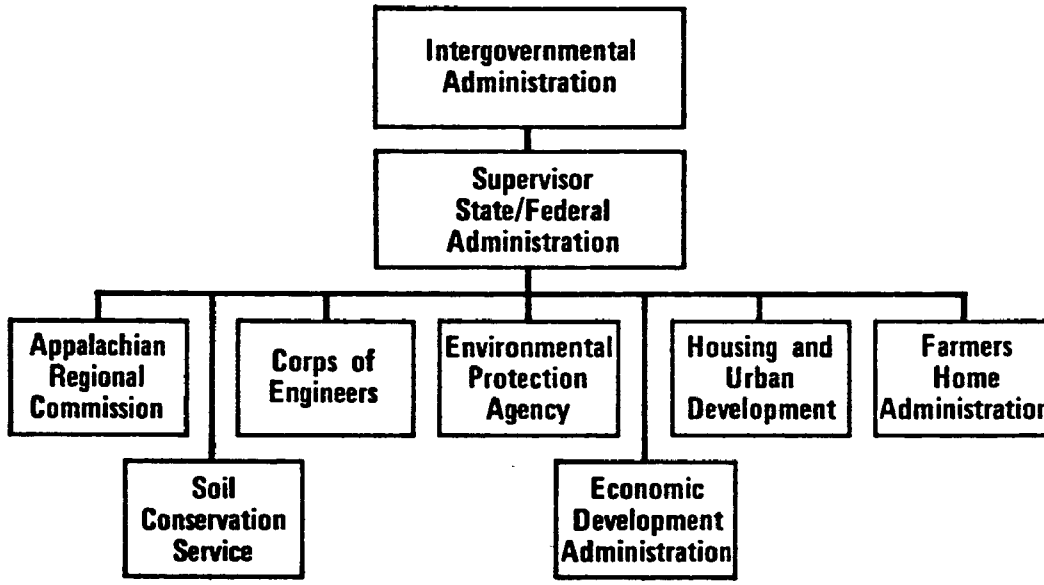


FIGURE 22 STATE/FEDERAL ADMINISTRATION SECTION

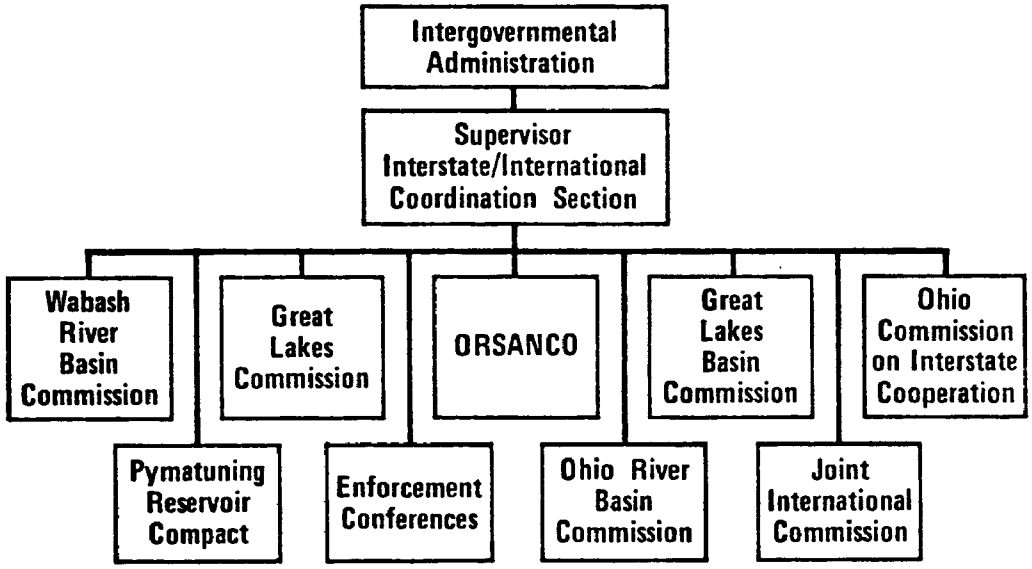


FIGURE 23 INTERSTATE/INTERNATIONAL COORDINATION SECTION

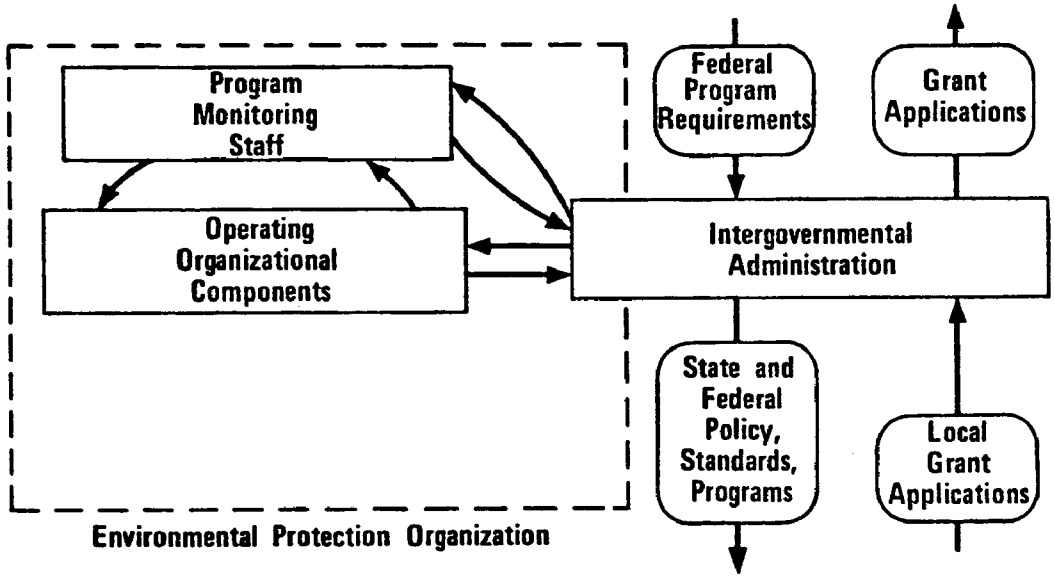


FIGURE 24 GENERAL INTERRELATIONSHIPS

- State/Local Administration--This section reviews all local/regional, State, and federal grant applications in the environmental area for compliance with institutional policies and standards. It also coordinates environmental protection with review and approval of federal grant applications by local/regional governments and entities . It reviews the performance of local/regional governments and entities and certifies them to undertake specific tasks. It prepares contracts and agreements with local/regional governments and entities to carry-out State and federal programs. It supervises and coordinates intergovernmental field services. Its other auxiliary services and activities are as follows:

  - Transmits State and federal policies, laws, and regulations to local/regional governmental agencies and supports field services' programs of implementation.

  - Assists local/regional governments and entities in the development of grant applications for projects and programs and coordinates these activities with regional, State, and federal agencies.

  - Develops information on the impact of current State and federal programs on local/regional governments and provides this information to Intergovernmental Planning.

  - Obtains the view and position of local/regional units of government on proposed and pending State and federal legislation, regulations, and guidelines, and it transmits this information to planning for development of State policy, plans, and standards.

  - Maintains schedules of required governmental approvals and institutional transactions with respect to projects and programs undertaken by local/regional units of government for air and water quality, solid waste disposal, and water supply development; this includes the coordination and timing of any permits and compliance authorizations in conjunction with other institutional transactions.

  - Coordinates local/regional governmental review of environmental impact statements and actions requiring approval through the clearinghouse procedures (OMB circular A-95).

  - Represents Ohio at federal enforcement conferences, in cooperation with State/Federal Administration.

  - Maintains a continuous review of local/regional government legislation and regulations to ensure its conformity to State policies, guidelines, and standards in matters of

environmental protection; in this capacity, it assists these agencies in developing, enacting, or promulgating new legislation and regulations.

- Reviews funding and other terms of local/regional contracts and grants on programs where State and/or federal funds are involved to ensure compliance with the policies and standards established by Intergovernmental Planning.

- Develops and maintains, with the assistance of the assigned Assistant Attorney General, standard agreement and contract forms of general applicability for use by local/regional units of government in their transactions with consultants, the State and federal governments, and other local units of government.

- Gathers information and data on local/regional governmental entities, including relevant mailing and contact lists, and provides this material to Information and Procedures Services.

• State/Federal Administration--This section forwards all grant applications to the appropriate federal agency and receives grant approvals. It is responsible for ensuring that multi-agency projects and programs are coordinated with the State, local government, and federal agencies involved. It monitors developing federal program requirements with respect to intergovernmental issues and State performance of environmental protection matters; in this capacity, any necessary approvals of State policies and procedures are obtained from the appropriate federal agency. The following activities are also within its scope of responsibilities:

- Identifies funding sources for State and local programs.

- Forwards State certifications of federal permit applications (RAPP Program permit applications).

- Forwards all environmentally related actions requiring State and local review and comment under A-95 (clearinghouse) procedures.

- Forwards all environmental impact comments for the environmental protection organization.

- Receives federal notices with respect to noncompliance with environmental laws and regulations, and coordinates internal review of such notices. Transmits such notices to State/Local Administration for appropriate actions with local/regional units of government when applicable.

- In cooperation with State/Local Administration, it represents Ohio at federal enforcement conferences.

- The Interstate/International Coordination--This section is charged with the following areas of responsibility:

  - Attends meetings of interstate and international commissions on environmental matters.

  - Develops State policy and procedures for commission activities in cooperation with other components of the environmental protection organization.

  - Coordinates the State's provision of services, studies, and other support to commissions where it is in the interests of the State or otherwise required by law.

  - Maintains constant awareness of developing policies and positions of the commissions and provides the information developed to Intergovernmental Planning.

  - Coordinates Ohio's activities directly with the activities of other states on matters of mutual concern and cooperation that are not covered by a formal interstate body.

  - Coordinates the activities and programs of the commissions and other states with other sections of Intergovernmental Administration for their appropriate action with respect to other government jurisdictions affected.

The field services arm of Intergovernmental Administration is supervised by State/Local Administration. Under this arrangement, field representatives are located in each of the four district offices to assist local/regional entities in the performance of their responsibilities for State and federal environmental protection programs. It is expected that field office personnel will exert a positive influence in helping to rationalize the diverse programs that exist at the local level. Their presence at the grass roots level will provided needed expertise and support in places where resources and skills are in short supply. Frequent face-to-face contact between State and local representatives coping with mutual problems in a collaborative mode should, over a period of time, build a firm basis for reciprocal confidence and cooperation.

Because of the innovative aspects of Intergovernmental Administration, a detailed summary of representative field activies is presented below.

- It assists local/regional entities in the preparation of grant applications in the environmental area and assures that they are in compliance with policies, standards, and guidelines of the State with respect to institutional and intergovernmental criteria.

- It assists local/regional entitites in identifying appropriate sources of funding for environmental protection projects and programs and in obtaining a preliminary State and, if necessary, federal review of feasibility and funding availability.
- It surveys local/regional entities as to performance, capabilities, authorities, and composition.
- It identifies specific intergovernmental and/or institutional problems for local/regional entities within the jurisdiction of the field office and assists in anticipating solutions to these problems in advance of their becoming crisis situations.
- It prepares proposed findings and recommendations as to certification of local/regional entities to perform specified environmentally related tasks delegated by the State, and it forwards them to State/Local Administration for final action.
- It assists local/regional entitites in the enactment of legislation and regulations that conform to State policy and standards.
- It assists in negotiations between local/regional entities for the conduct of specific environmental projects and programs and negotiates directly on behalf of the organization with local/regional entities for the conduct of State and/or federal projects and programs, within policy and standards established by the environmental protection organization, and with the assistance of standard forms, agreements, contracts, and other instruments.
- It develops information on the impact of current State and federal programs on local/regional units of government and provides this information to State/Local Administration for consolidation with information provided from other districts and for the development of State policy, standards, and criteria.
- It transmits State and federal policies, standards, and procedures to local elected officials and administrators responsible for environmental affairs, and it interprets these matters with these officials and administrators and identifies any potential conflicts.
- It obtains the views and positions of local/regional entities of government on proposed and pending State and federal legislation, regulations, and guidelines; it transmits this information to State/Local Administration for consolidation

with information provided from other districts and for the development of State policy, standards, and criteria.

- It performs special studies of local/regional entities and their needs at the request of Intergovernmental Administration and in support of other programs of the environmental protection organization.
- It provides the local information required to establish and maintain detailed schedules of required governmental approvals and institutional transactions for individual projects and programs being undertaken by local/regional units of government; it keeps the local/regional unit informed of approval status.
- It obtains ordinances, regulations, and authorities of local/regional entities of governments and their departments, agencies, and commissions; it maintains a file of this material in the district office and forwards copies of selected material to State/Local Administration.
- It maintains a continuous review of local/regional governmental legislative and regulatory actions to assure that they conform to State policies, standards, and guidelines for environmental protection.

Authorization and Compliance Operations

Authorization and Compliance Operations is charged with the responsibility for reviewing, processing, and approving all applications for authority to construct or modify and for permits to operate all facilities that impact on the environment. In addition, this function has the authority to place conditions on its approval or to allow variances within legal limits and valid circumstances. Renewal of such permits also falls within its jurisdiction. Authorization and Compliance maintains a data file containing information on the operating characteristics of facilities and makes this data available to the public when requested to do so.

It issues licenses and certificates to operators, technicians, and laboratory facilities. This responsibility is handled through the medium of a testing program for individuals and an inspection program for verifying the capabilities of different categories of facilities.

Authorization and Compliance should strive to negotiate voluntary compliance with environmental standards whenever possible. In situations of public interest and concern, this division prepares and conducts public

hearings on standards, authorizations, and permits under its authority for improvement actions. On those occasions when it is necessary to undertake legal actions, Authorization and Compliance prepares and supports such legal actions and recommends fines, penalties, and assessments. In all of its actions, the division should seek to achieve equitable enforcement of applicable standards, regulations, and laws. A description of the organizational characteristics of Authorization and Compliance Operations is shown in Figure 25. The division is composed of three sections whose activities are summarized below:

- Registration and Permits--This section develops consistent and equitable procedures and policies regarding the submission of applications, comprehensive reviews, and issuance of authorizations to construct or modify and permits to operate. It relies on advice and counsel from Technical Services and Legal Counsel and Representation. The section also administers an authorization and permit system within the context of appropriate legislation, policies, and regulations. It calls upon relevant service from the environment protection organization to ensure that conditions, schedules, and variances are consistent with the standards promulgated. It provides prompt service through sound administrative procedures and controls, and at the same time, it assures adequate review of applications and plans by all appropriate components of the organization.

- Licensing and Certification--This section, with the advice and assistance of technical personnel from other components, develops examinations to support the licensing of operators of technical equipment, treatment plants, and control devices for protection of environmental quality--including air, water supply, water treatment, and solid waste disposal. Examinations are developed to support the certification of laboratory technicians, professionals, and paraprofessionals

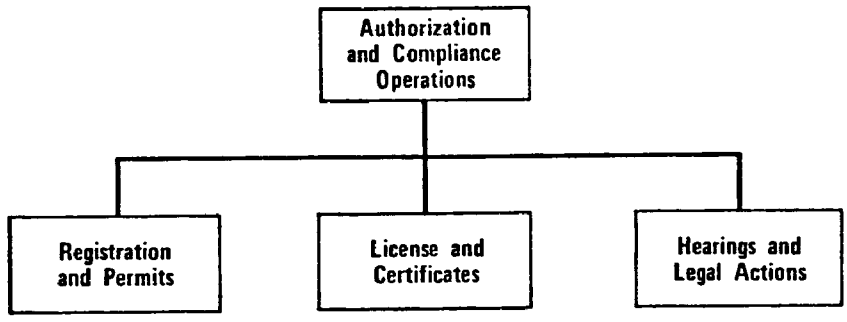


FIGURE 25 AUTHORIZATION AND COMPLIANCE ORGANIZATION

engaged in the analysis and reporting of the components of effluents, emissions, and ambient data that may be used in administrative hearings and legal actions. Examinations are also developed for the registration of employees engaged in inspections and investigations of environmental problems, sites, and sources. The unit maintains appropriate records and a system for collecting fees.

- Hearings and Legal Actions--This section draws on the advice of legal counsel and technical support from components of the environmental protection organization to develop the testimony, exhibits, and data relevant to administrative hearings on standards, authorizations, and permits. It supports the conduct of administrative hearings through proper scheduling of hearings to assure prompt and effective response to the legal situation. In addition, it records, transcribes, and publishes the testimony; and it provides the hearing officer with other required support services. It is responsible for maintaining appropriate files and data on all actions and orders that emanate from public hearings and litigation. It develops--with advice of legal counsel--testimony, exhibits, and data to support litigation in any court of jurisdiction in cases involving the environmental protection organization. It records, collects, and books all fines, penalties, and assessments ordered by hearing officers or courts. It provides access to proper legal authority for the issuance of warrants to enter private property when such warrants are required for the conduct of environmental protection organization inspections, investigations, and related actions.

Manpower and Staffing Requirements

The estimates of staff requirements presented here are based on the implementation of the organization structure previously described; these estimates provide reasonable approximations of the staff requirements for the responsibilities assigned to those organizational components. It is assumed that the degree of functional specialization on the one hand and categorical resource generalization on the other hand can be implemented as recommended in the body of this report. It should be recognized that, particularly in the majority of headquarters positions, some detailed adjustment of these staff projections may be required during the process of implementation and organizational "shakedown" as the actual work load for these recommended positions becomes clear as

during individual familiarization with the revised procedures and practices necessary in a functionally specialized operation.

It should be fully recognized that the staffing estimates shown in this section are projected from present program responsibilities and operations. It is possible that the provisions of Amended Substitute S.B. 397 and pending federal legislation may require considerable reevaluation of manpower needs. New technology and expanded program requirements may necessitate upward revisions of this estimate. The organization structure recommended in this report has been designed to accommodate these very real possibilities.

Insofar as possible, the position estimates described here are based on approximations of work load extrapolated from observation of the present organization, detailed task analyses (particularly in the Field Surveillance and Technical Services Operations), and the background description of the division of responsibilities between the State organization and local governmental entities, as described in the available resource plans early in 1972.

New Functional Components

Several of the organizational components recommended in the new organization structure do not have a corresponding entity or fully staffed positions, as such, in the present organizational arrangements. The staffing levels of these newly identified functions and organizational components are based on informed estimates of probable need for such services tempered by what seems rational in the organization's ability to attract personnel to these staff positions and to provide the necessary budgetary funding to support them. These newly identified positions are included in the following organizations:

- Information Systems--This component recognizes the need for development of a comprehensive, integrated, and consistent information system and procedures organization to serve the needs of all environmental protective functions.
- Public Interest Center--This activity recognizes the need for focus on public issues and concerns and the establishment of a two-way communication channel with public constituencies.
- Program Monitoring--No presently identified function exists to fill this newly defined need for central program administration within the organization and for the provision of a single source of categorical program status.

- Intergovernmental Administration--A substantial increase from presently identified staffing levels springs from the need for consolidation and consistency in the servicing of intergovernmental transactions for all resource categories.

- Authorization and Compliance--Again, a substantial increase in presently identified staffing levels responds to the need for a single, comprehensive function to discharge the responsibilities now distributed among several boards and to bring consistency to the overall enforcement activities.

- Legal Counsel and Representation--Estimated staffing levels provide for what is considered adequate legal support in the development of case law and in the support of planned approaches to enforcement operations. It should be noted that the Attorney General has the authority to obtain special counsel for purposes of representation in certain circumstances. Specific case loads required to cope with its authorization of air and water permits are unknown at this time. Where fluctuations in case loads can be anticipated, use of special counsel may be a more attractive alternative than permanent lawyer staffing. The manpower estimates are based on the need to provide legal support for routine functions where the development and application of environment standards are involved, in addition to the customary legal support to executive branch agencies.

- Environmental Planning--Staffing levels in this function recognize the expressed need for development of self-sufficient planning operations with less dependency on outside contracted services.

- Field Operations

  The staffing of field operations is based on the organization of four district offices. Each district office is administered by a district administrator with appropriate support staff, including supervisory and professional representation from Field Surveillance, Field Technical Services, and Field Intergovernmental Relations. Four district offices, located in the four quadrants of the State, would provide a reasonable base for such operations, balancing the need for administrative services against the requirements of travel time for those filed personnel required to have contact with local governmental entities distributed across the State. The professional and technical staff levels for Field

Surveillance Operations and Field Technical Services have been developed through the application of a mathematical manpower planning model described in detail in a separate working paper supplementing this report.

Estimated Staffing Requirements

The estimated staff manpower requirements shown in Table 2 are based on detailed analyses of individual position functions, summarized here from an earlier revised working draft. In total, these estimates indicate an increase from a present staffing level of 238 positions to a complement of 655 positions within a forecasted time span of approximately two to three years. The recruiting, training, development, and orientation of approximately 400 additional staff members in the environmental protective organization represent a substantial challenge to the State of Ohio. No less important is the requirement for continuing budgetary support for the level of operation that this implies.

Table 2

STAFF ESTIMATES

Function	Present Staff	Full Complement Organization
Director-Deputy Director		8
Environmental Planning Service	23	62
Surveillance Administration	62	211
Technical Services	89	138
Authorization and Compliance Operations	7	53
Legal Counsel and Representation		25
Intergovernmental Administration	7	40
Information and Procedures Services		37
Finance and Administration Operations	50	61
Program Monitoring Staff		10
Public Interest Center		10
Total	238	655

From the detailed analysis contained in the working draft, a staff position analysis has been developed and is shown in Table 3. This table indicates a professional and technical staff component of 57 percent, administrative and supervisory positions totaling 17 percent, and a clerical and support staff of approximately 25 percent of the total of 655 staff positions.

Table 3

STAFF POSITION ANALYSIS

	Administrative/ Supervisory	Professional/ Technical	Clerical Support	Total
Director	2	2	4	8
Environmental Planning Service	9	38	15	62
Legal Counsel and Representation	8	12	5	25
Information and Procedures Services	7	23	7	37
Surveillance Administration	30	145	36	211
Finance and Administration Operations	15	22	24	61
Technical Services	18	80	40	138
Intergovernmental Administration	10	17	13	40
Authorization and Compliance Operations	5	29	19	53
Program Monitoring Staff	4	4	2	10
Public Interest Center	4	4	2	10
Total staff	112	375	166	655
Percent of total staff	17.1%	57.5%	25.4%	100.0%

Testing the Organizational Design

To illustrate the intercomponent relationships of the new organizational design, it is helpful to trace certain selected examples of relatively high volume activities and to briefly describe the functional responsibilities of each organizational component in processing these transtions. Since the major work load of the organization, in terms of man-years of applied effort, is concerned with detailed transactions involving individual pollution sources in all resource categories, transactions describing source inventory registration, authorizations to construct or modify facilities, permits to operate, and the routine surveillance and compliance activities have been selected for detailed description.

In the concept of functional specialization and resource category generalization on which this organizational structure is based, the functional descriptions that follow are independent of resource categories; i.e., these activities would be performed for transactions involving air pollution sources, water pollution sources, water supply sources, or solid waste disposal sites.

Source Inventory Registration

The series of activities shown in Figure 26 is initiated by the distribution of registration forms from Authorization and Compliance Operations to each known source within the State. The registration forms, completed by the responsible individual of the source organization, are returned to Field Technical Services having jurisdiction within their district. Within established guidelines, either the Field Technical Services operation would compute the emission levels inherent in the data provided by the source, or, if they are beyond guidelines, would transmit the data that has been edited and confirmed at the field level to the headquarters Technical Services operation. Technical Services would then confirm the source inventory data calculations, transmit the information to Authorization and Compliance, and record the essential identification and inventory information on the comprehensive data base. To close the loop, Authorization and Compliance would confirm the registration information directly to the registered source.

Authorization to Construct or Modify

In order to bring his source into compliance, a source applicant would complete the necessary engineering plans, specifications, and other relevant application requirements under competent technical and engineering

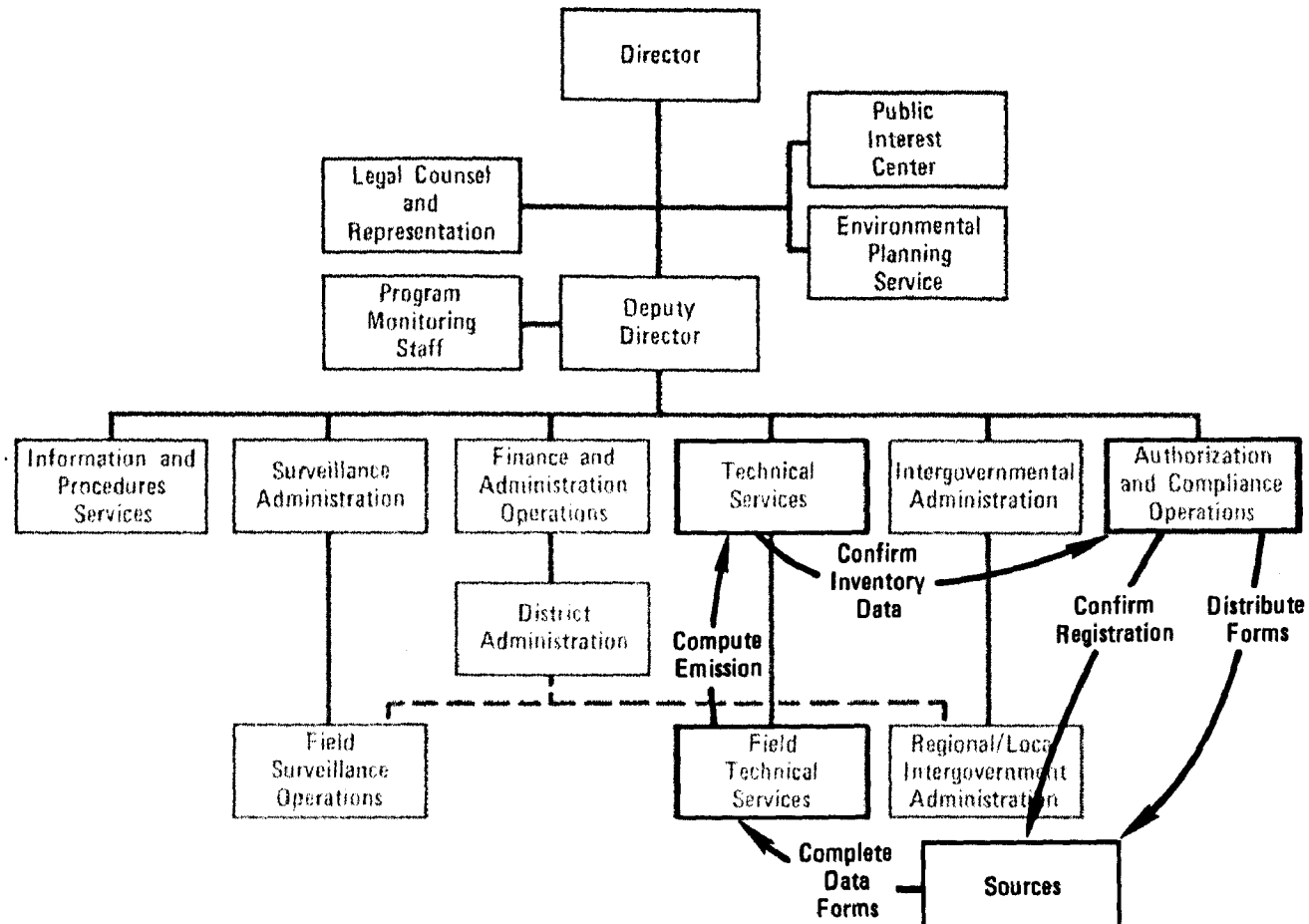


FIGURE 26 SOURCE INVENTORY REGISTRATION

supervision, utilizing the Field Technical Services personnel for consultation as appropriate. As shown in Figure 27, these plans, submitted to Field Technical Services, would be validated and confirmed at the field level prior to their transmission to the headquarters Technical Services component, where the improvement factors in the emission level would be verified. Meanwhile, Intergovernmental Administration would take whatever steps are appropriate to arrange for available funding sources and to provide other necessary intergovernmental services. Authorization and Compliance Operations would then arrange for the conduct of whatever hearings may be required or desired prior to the issue of a final permit for construction or modification of the applicant's facilities.

Permit to Operate

Following the completion of the construction program, at the time the new facility is scheduled to go onstream, Authorization and Compliance Operations would issue the appropriate application forms to the source. As shown in Figure 28, the completed application forms, transmitted to Field Technical Services, then trigger collection of appropriate samples and inspections by Field Surveillance Operations personnel. The results of these inspections and sampling procedures, transmitted to Technical Services headquarters for review, result in Technical Services' recommendation for appropriate permit conditions. Again, Intergovernmental Administration provides the source applicant with consultation and advice, where such steps appear necessary, before transmitting the final application and recommended permit conditions to Authorization and Compliance Operations. Authorization and Compliance conducts whatever hearings and investigations may be further required before issuing the final permit for operation to the source applicant.

Source Surveillance and Compliance

As shown in Figure 29, following schedules designed by headquarters Surveillance Administration, Field Surveillance Operations conducts routine inspections, sampling, and analysis of all operating sources within the State, reporting its findings to Field Technical Services. Having validated the surveillance data, Field Technical Services reports any questionable source emission levels to Authorization and Compliance Operations. After appropriate interaction with headquarters Technical Services, a determination is made of the noncompliance of the individual source. In an effort to achieve voluntary compliance, consultation and advice are conducted before action is recommended to Authorization and Compliance, where, as a final recourse, evidential data for prosecution

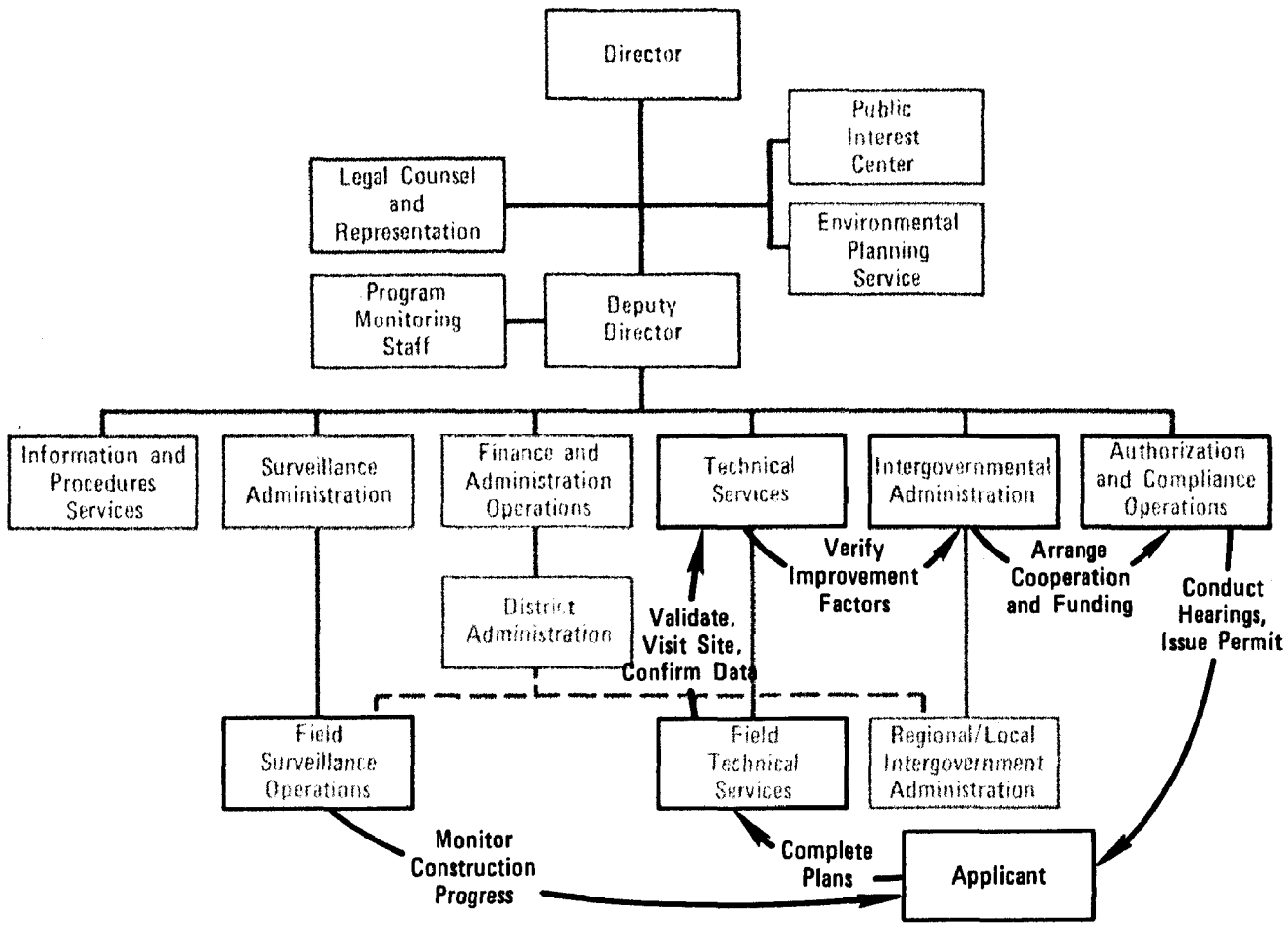


FIGURE 27 AUTHORIZATION TO CONSTRUCT OR MODIFY

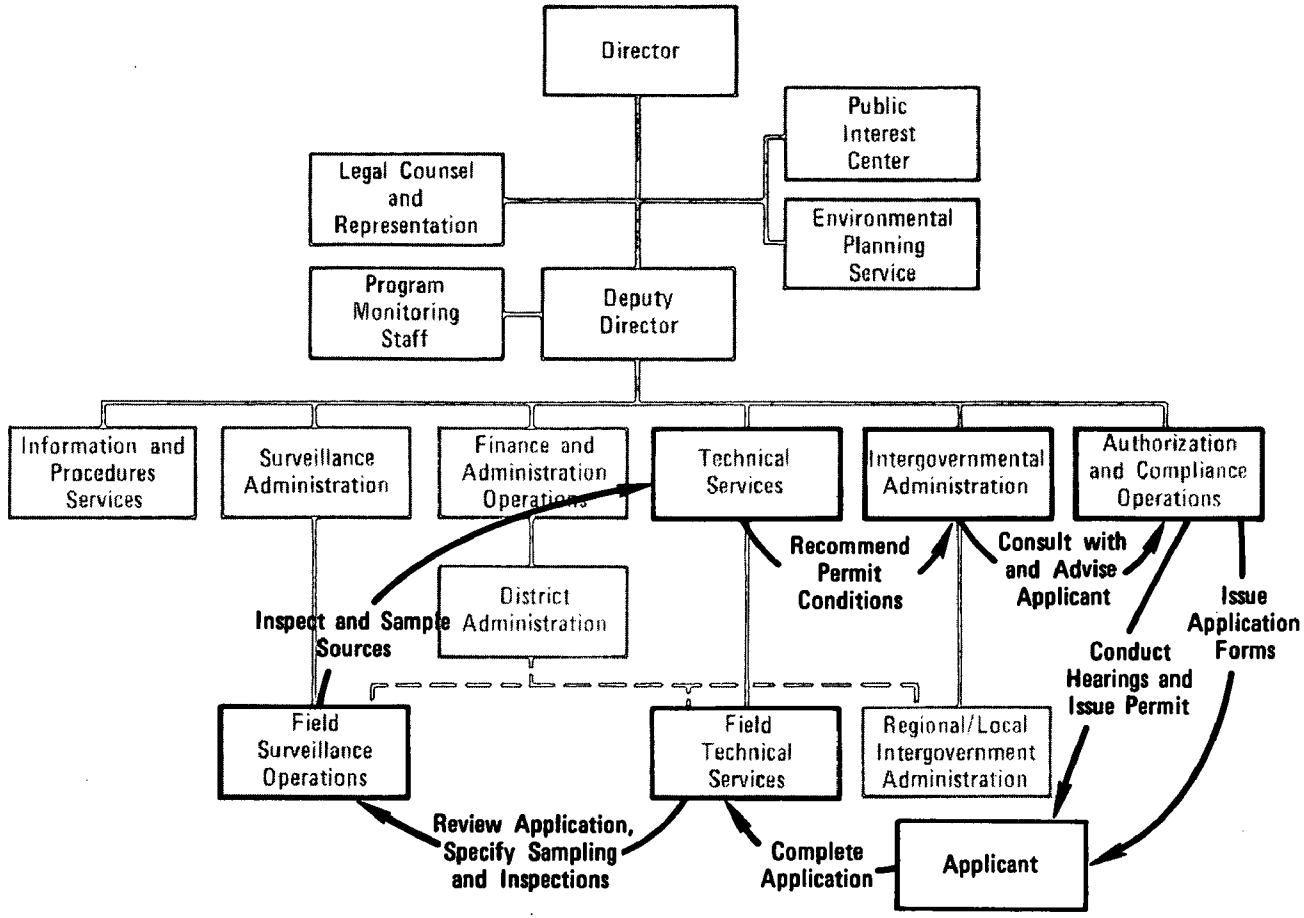


FIGURE 28 PERMIT TO OPERATE

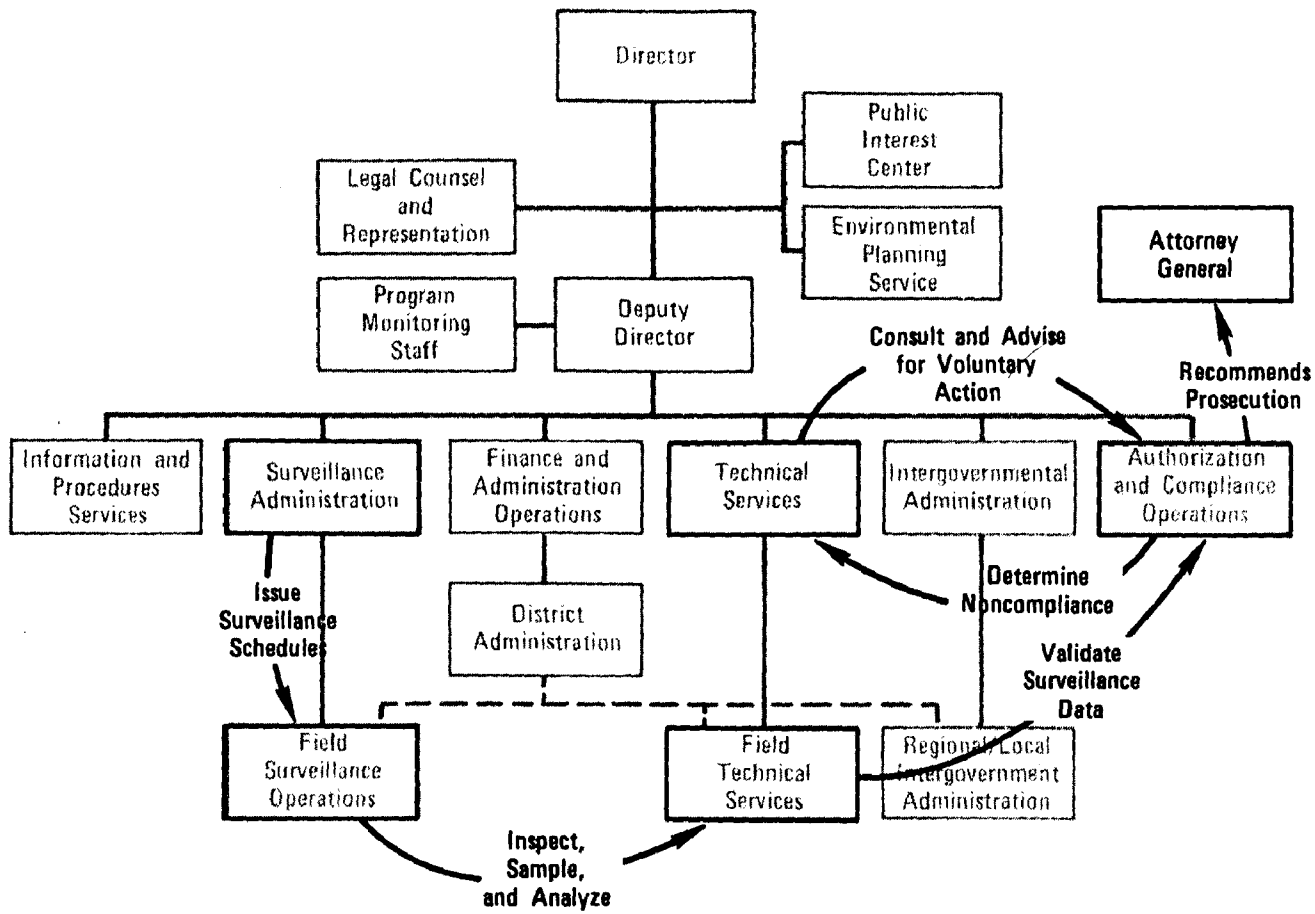


FIGURE 29 SOURCE SURVEILLANCE AND COMPLIANCE

are accumulated and recommended to the attention of the Attorney General through the appropriate legal channels.

The above brief descriptions of certain technical transactions illustrate the general procedures that would be followed by the new organizational components, demonstrating the philosophy of functional specialization and the clean separation of technical specialization inherent in the recommended organization.

VII IMPLEMENTATION

The implementation of a new organizational design involves more than specifying functions, roles, or policies. In addition to a clear understanding of the mechanics of the organization and the interrelationships of its components, the implementation process requires each individual's recognition of new expectations, attitudes, and behavior. At the same time, it requires management's realization that the allegiance and support of the staff for the new organization must be developed rather than demanded. In order to accomplish this commitment of the entire staff in implementing the new organization, it will be necessary to observe the following principles.

- Identification and Assessment of Human Impacts

  Although organizational designs are relatively impersonal, they can be perceived as opportunities or threats to individual staff members through actual or prospective influence on their status, career development, or working patterns. In order to deal with these situations, it will be essential to establish an open communication link with the staff so that each aspect of the new organization can be explained fully as problems or questions are raised.

- Development of an Implementation Strategy

  The manner in which the new organization is implemented can have a significant influence upon its prospects for success. Recognizing the need to satisfy the legitimate concerns of the staff, an effective strategy may be one that combines the traditional directive approach with a nondirective, participative method.

- Organizing for Implementation

  Careful planning will be required to guide the implementation process. This will include identification of responsibilities for the implementation work, as well as allocation of resources to carry it out. The implementation work need not necessarily be entirely congruent with either the

new or old organization, as the transition process will involve distinct and separate tasks.

- Participation and Feedback

  Any new endeavor that alters behavioral patterns will probably not be developed exactly as planned, no matter how much care is exerted in the preparation of plans. The implementation process must be sufficiently flexible to respond to the changing situations that arise and to address the specific questions regarding transition and operation of the new organization.

In short, the above principles for implementation merely reflect the need to encourage the cooperation and receptivity of the staff toward the new organization and to enable the organization to learn from its own experience both before and after the transition process. Staff familiarity with everyday operations can be effectively channeled toward positive, beneficial purposes for individuals and the organization.

Organizational Work Group

To assist in the implementation process through providing a means for more direct participation of the staff, SRI suggests the establishment of an organizational work group. The purpose of the work group is to provide for the representation of interests and viewpoints of the staff at several levels of the existing organizations. The work group should include members from a cross-section of horizontal and vertical elements of the organization to create a balanced perspective on the implementation process. The work group should be relatively small, preferably seven to ten members, to encourage participation and open discussion in its meetings and activities. Since the group would be a mechanism for personal staff participation in the implementation process, it may be desirable to encourage staff selection of members of the work group.

The group would conduct meetings, hold discussions, and arrange orientation sessions to acquaint the membership of the existing organizations with the new organization and to explain their roles and responsibilities. The group could also carry out special studies of problems that arise during the implementation process, and it could respond to questions and concerns that are raised by individuals. Working closely with both management and employees, the group would help solve problems and facilitate the implementation process.

The organizational work group would provide both staff and management with an alternative means of communication to the traditional, directive approach. It could relieve possible pressures that might stifle the initiative essential for successful implementation of the new organization. The group would also provide a means for staff anxieties to be aired and heard by management, while at the same time offering management an avenue to provide clarification of meanings, explanation of concepts, and resolution of any ambiguities that impair full implementation of the new organization.

Without the organizational work group, the staff would have little participation in the implementation process. Key positions would be filled, and then these incumbents would fill positions in their unit by assignments or by drawing upon available personnel. For a variety of reasons, some staff members may find such a process inconsistent with their basic interests or objectives. If they conclude that their interests are not served by their assignment under such a traditional approach, their choice is clear--they can either accept it or leave. In view of the shortage of trained personnel in enviornmental areas, however, the potential loss of professional staff should be regarded as adverse to the goals and objectives of the organization. The opportunity should be given to staff members (especially those members showing talent and promise) to play an important role in shaping the new organization and, thus, to directly bring about their involvement in the process and provide a better means for resolving potential conflicts. In this context, the organizational work group would therefore serve as a safety valve that influences potential management actions by bringing the views of the staff to management attention. If successful, such an approach could also help the organization in the period following the implementation phase by serving as a means for channeling feedback and internal evaluation.

Priorities

The leadership of the organization will need to establish priorities for implementation. Among the priority items to be addressed early in the implementation process are the following:

- Develop procedures for governing the process of orderly transition to the new organizational structure.
- Analyze existing legislative authorities assigned to the new organization, and ensure that proper coverage is provided for in the integrated functions of the new organization.

- Determine facilities and support needs.
- Formulate detailed implementation plans for physical and organizational relocation into the new structure.
- Establish a comprehensive implementation schedule for full conversion to the new structure, and set its effective date.

The setting of priorities would be based on the same general approach employed in the design of the new organization, e.g., it falls within the scope of the strategic concepts and follows the behavioral principle of staff participation. Specific design factors for the implementation process are described below.

Implementation Process Design Factors

The process of implementing the new organization will naturally result in alteration of present patterns of operations. Based on the priorities established by the organizational management and the work group, the implementation process should be designed to account for the following factors:

- Ensure continuity of operational performance of statutory responsibility during the transition phase.
- Describe details of functions to be performed by each organizational element (as well as relationships with other parts of the organization upon which each element is dependent for information or services).
- Employ functional descriptions to guide staffing requirements in terms of qualifications, training, and experience to aid in personnel selection, placement, and advancement.
- Provide for maintenance technical expertise in environmental investigations (e.g., air, water, solid waste, etc.).
- Establish separation of technical from nontechnical functions.
- Maintain field inspection and permit programs.
- Continue plan review and comprehensive planning activities.
- Provide for environmental sampling and surveillance programs and facilitate the compilation and exchange of information from these activities.

- Ensure maintenance of program relationships with counterpart agencies of the federal government (including interstate and international programs), regional governmental bodies, and local governments during the transition process.
- Describe sequences of responsibility for typical programs among new organizational elements (i.e., information, support, and operational requirements to fulfill assigned tasks) to determine the details of internal cross-checking and feedback that will serve to permit continuous evaluation of functional performance.
- Maintain relationships with other State agencies that carry out programs related to those of the new environmental protection organization.

Knowledge of the positive and negative factors of present operations by units that will become part of the new organization is essential in formulating detailed design factors for implementation. These factors will need to be evaluated critically to properly guide the design of the implementation activities. The evaluation will need to be objectively and impartially performed if it is to be of real value in shaping implementation activities. This means that those who participate in this activity (especially nonmanagement members of the organizational work group) will need to be given assurance that their candor in evaluation will be respected rather than resented by those presently in positions of responsibility.

Organizational Relocation

The implementation process will doubtless result in organizational relocation of certain elements from present agencies. It will be important to plan the implementation to address the following relocation (in both a physical and administrative sense) guidelines:

- Relocate like functions to provide for integrated and coordinated operations.
- Consider intact transfer of present organizational entities to the new structure to the extent practicable according to their functions.
- Emphasize placement of technical expertise in the new structure where either its general availability to the organization is enhanced or where environmental problems are such that they warrant more direct expert attention.

- Provide a central executive and administrative control capability at the outset so that organizational leadership will be centralized, even if physical limitations do not permit initial consolidation of all elements.

The basic purpose of organizational relocation in implementing the new design is to achieve efficient operational and management control of activities conducted in concurrence with the new structure. This implies that the relocation should be planned to coincide with the initiation of new operating practices or procedures as determined by the overall implementation strategy and plan. Furthermore, it implies that a comprehensive schedule for organizational relocation will be developed and employed to guide the relocation. Where actual physical moves of personnel or functions are required, the plan will have to account for the necessary facilities to accommodate the relocated personnel with a minimum of disruption in on-going programs. At all stages, involvement of the membership (especially the organizational work group) will be necessary to achieve understanding of the process and timing of any prospective moves. There should be no surprises to the staff on physical or administrative aspects of implementation. The need for good communication during this phase of implementation is especially critical for success.

A schematic representation of the organizational relocation of present units into the new organizational elements is shown in Figure 30. The basis for this representation is the individual units of the present organizations of the Departments of Health and Natural Resources designated (or implied) to be placed in the new environmental protection organization by Senate Bill No. 397. The several units (or particular functions) are shown according to their principal activities relative to the functional composition of the recommended organization design. These figures are in gross terms only, as the details of the organizational relocation of indicated components will necessarily require the attention of the comprehensive implementation planning process. Nevertheless, the figures present an overview of the anticipated initial makeup of the new organization and will therefore be useful in guiding the implementation planning process.

Another way to examine organizational relocation is to employ an analysis of tasks. In Figure 31, each task performed by an element of the present organizations is shown in its corresponding position relative to the new organization component responsible for that function. In this listing, tasks refer only to particular items of work; they do not include any indication of the amount of time or effort required to accomplish them. (The present staff associated with these functions was described in an earlier section of the report.) The important factor to note with respect to implementation of the new organization is that roughly two out

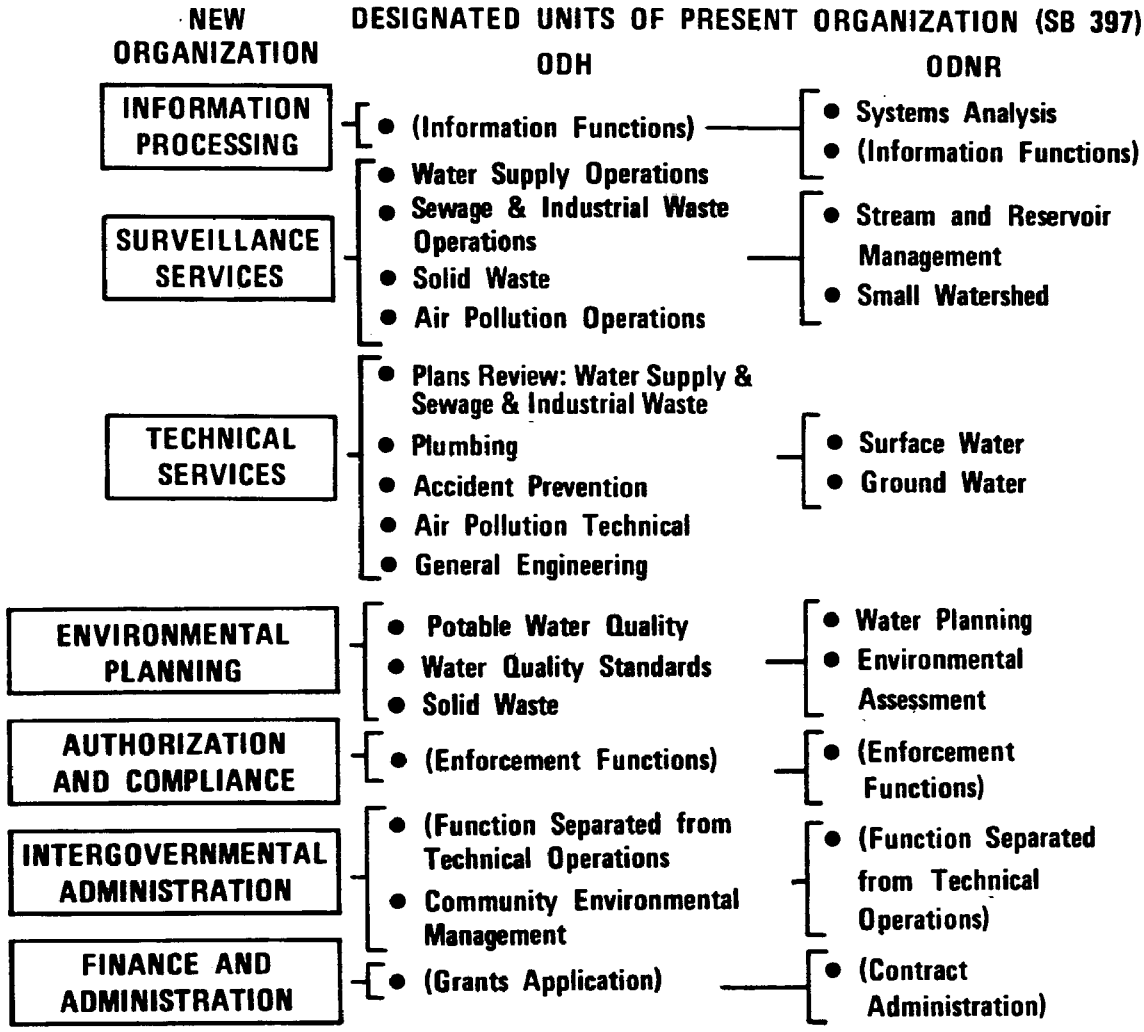


FIGURE 30 SCHEMATIC OF REORGANIZATION BY PRESENT UNITS (GROSS TERMS ONLY)

Present Organizational Components		PROPOSED ORGANIZATIONAL COMPONENTS									
		Surveillance		Technicals		Authoriz. and Compliance	Finance and Admin.	Information and Commun.	Inter-government	Environ. Planning	Total
		Cent.	Field	Cent.	Field						
ODH	Sanitation	2		16		1	6	—	—	1	26
		1	1	10	6						
	Engineering	52		114		6	26	1	12	6	218
		16	36	106	8						
	ODH	54		130		7	32	1	12	7	243
		17	37	116	14						
ODNR	Water	29		25		1	1	—	—	1	57
		8	21	23	2						
	Water Planning	2		8		—	3	—	—	35	48
		1	1	8	—						
	Water Mgmt.	5		12		—	2	5	—	1	25
		5	—	8	4						
	Environ. Assessment Program	—		17		—	—	—	—	—	17
		—	—	17	—						
	ODNR	36		62		1	6	5	—	37	147
		14	22	56	6						
TOTAL		90		192		8	38	6	12	44	390
		31	59	171	30						

NOTE: Entries indicate the number of tasks in the present organizational component that would be allocated to the proposed organizational component.

FIGURE 31 TASK REASSIGNMENT MATRIX

of three tasks are performed by the present units of the Department of Health and that these are mostly in technical areas. Similarly, the Department of Natural Resources has most of its tasks in the technical area. In terms of organizational relocation and implementation of the new design, it will be valuable to ensure adequate coverage of those functional areas not well represented by present task assignments, as well as to maintain the services represented by present tasks. Obviously, achievement of this objective will require careful planning, design, and scheduling for implementation of the new organization design.

Schedule

The new organization will not be implemented overnight; it will take time to accomplish the transition from the present structure. However, the fact that the new organization will not become immediately effective is no argument against adopting the recommended design, as long as the implementation process plan attends to the following scheduling guidelines:

- Design implementation of the new organization should become effective at the same time for similar functions.
- Schedule implementation of management-level functions early in the sequence to guide implementation of operational-level functions (e.g., the Director's Office; Finance and Administrative Operations, including the personnel function and district offices; Information and Procedures Services; Environmental Planning Service; and Intergovernmental Administration should be implemented early).
- Employ these management functions in their new organizational mode to aid in establishing details of implementation of Surveillance Administration, Technical Services, and Authorization and Compliance Operations.
- Within technical functions, schedule implementation of new organizational design in reverse order of their establishment (i.e., the most recently established functional programs would be implemented first: air, solid waste, water).

Based on these guidelines and the earlier factors to be considered in implementation, a tentative schedule for implementation of the new organization is presented in Figure 32. A total implementation period of six months is envisioned from the time of formation of the new organization until it is fully operative. This tentative schedule shows a modified Gantt chart in which several overlapping implementation tasks are indicated. The chart is an overview; actually, these several tasks

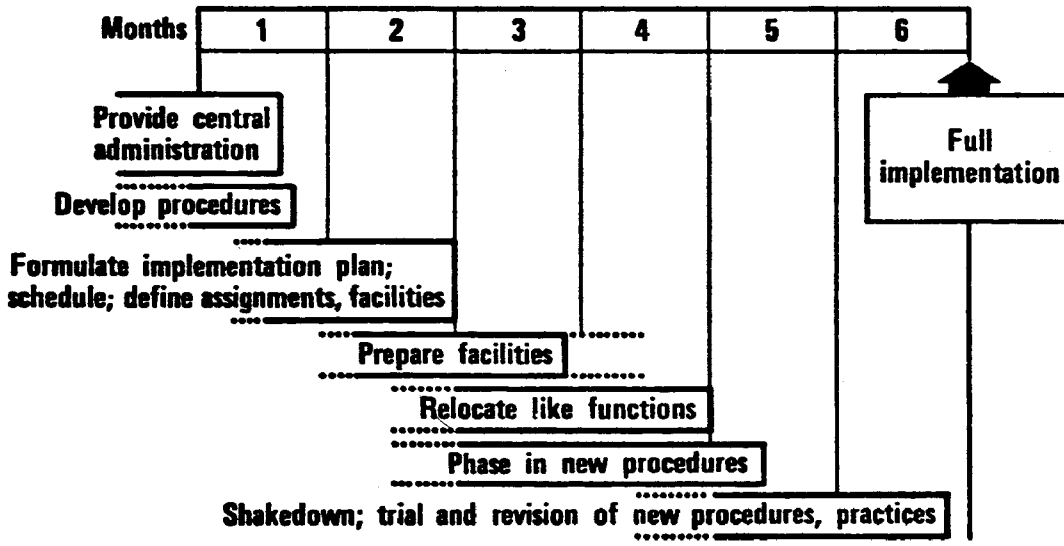


FIGURE 32 TENTATIVE SCHEDULE

(and more detailed subtasks) will probably be in progress simultaneously for the various elements of the organization. Moreover, individual elements should not be expected to conclude the tasks according to exactly the same schedule; some will require more time than suggested, others may need less--this will have to be anticipated in the preparation of the detailed implementation plan.

Generally speaking, the schedule indicates that initial tasks, such as providing central administration and developing procedures for implementation, will be accomplished during the first month of the implementation period. At this time, the organizational work group would be organized to begin its activities. Also, the initial selection of key management personnel expected to play an important part in implementation would greatly facilitate the transition process and enable more efficient operations.

Based on this work, detailed implementation plans and schedules would be formulated for the entire organization and for each element, down to the smallest identifiable activity. In some cases, an organizational unit in the present organizations performing a separate function can be transferred as a whole to the new structure. In other cases, it will be necessary to plan on a task-level basis where present units include a wide variety of tasks. The plan will have to account for the responsibilities, assignments, and facilities required to carry out the functions, and it will have to provide a means for logical, phased transition to the new organization. An important part of this plan will be the determination of facility needs sufficiently early so that the necessary

facilities can be prepared to accommodate the physical relocation of personnel or functions required to achieve efficient operations in the new organization.

Concurrent with organizational relocation (physical or administrative), the procedures for carrying out the functions of the new organization should be put into force. Much of this can, perhaps, be done early in the overall implementation process; however, some of the new procedures can best be introduced after actual relocation has been accomplished, but this would not preclude dissemination of the new procedures prior to their being placed in effect. Discussion of their significance and content among the staff under the leadership of the organizational work group would be a natural activity of the group.

In all probability, the new organization will require a shakedown interval; it is unrealistic to expect that the new procedures and organizational units will operate smoothly from the start. For many parts of the organization, this trial interval will take place during the implementation period. Much can be learned from the experiences of elements of the organization that are implemented early by comparing their actual operations against the expectations and stipulations of the implementation plan. This knowledge can be used by management and the organizational work group to guide the operations of other elements and to make appropriate revisions in the procedures to eliminate problems. Particularly successful practices that are developed could also be extended to the entire organization. Full implementation of the new organization design will provide further opportunities to refine the operations. This will be especially true as the size of the staff is increased toward the estimated complement required to deal most effectively with the organization's range of responsibilities.

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