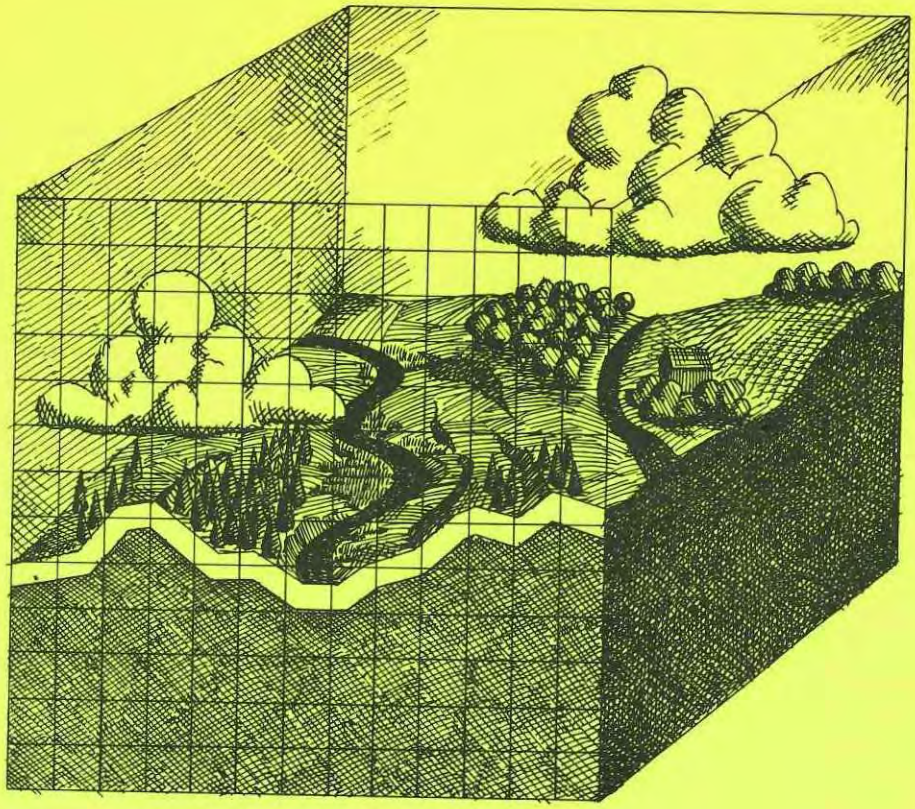


The Connecticut Council on Environmental Quality

Annual Report 1979

Table of Contents

		PAGE
Letter from Chairman		
Acknowledgements		
Preface		1
Introduction		4
Activities		7
Recommendations Summary		9
PART 1:	Hazardous Materials & Solid Wastes	
	Section 1: Hazardous Wastes - Closing the Circle	18
	Section 2: Carcinogenic Substances	31
	Section 3: PCBs	35
	Section 4: Solid Waste	42
	Section 5: Existing and Future Landfill Sites	48
PART 2:	Water-Related Activities	
	Section 1: Dredging and Dredge Material Disposal	53
	Section 2: Groundwater Quality	63
	Section 3: Filling and Erection of Structures In Tidal Wetlands by Littoral Landowners	65
	Section 4: Stream Encroachment Lines and Their Function in Flood Control	69
PART 3:	Air Quality	
	Section 1: State Implementation Plan	71
	Section 2: Indirect Source Program	76
	Section 3: Issues in Good Air Quality	81
PART 4:	Legislative Changes in Environmental Laws	84
PART 5:	Coastal Area Management	92
PART 6:	Connecticut Environmental Policy Act: Amendments	98
PART 7:	Urban Issues	
	Section 1: Malls	105
	Section 2: Farmland Preservation	112
	Section 3: Lead Levels in Urban-Dwelling Children	113
PART 8:	Conservation & Preservation	
	Section 1: Recreational Activities	118
	Section 2: Woodcutting Program	119
	Section 3: Property Management Unit	122
	Section 4: Connecticut Indian Affairs Council	123
PART 9:	DEP UPDATE	
	Section 1: Lead Agency Concept	125
	Section 2: Office of Adjudication	128
	Section 3: Litter Control	129
	Section 4: Noise Control: Echo Program	130

APPENDIX:

A. DEP Organizational Chart
B. Summary of Major Citizen Complaints
C. Summary of Selected Activities

STATE OF CONNECTICUT

COUNCIL ON ENVIRONMENTAL QUALITY

STATE OFFICE BUILDING, RM. 141 HARTFORD, CONNECTICUT
PHONE: 566—3510 / 566-8066

The Honorable Ella T. Grasso
Governor, State of Connecticut
State Capitol Building
Hartford, Connecticut 06115

The Honorable Joseph J. Fauliso
Senate President Pro Tempore
Room 313, State Capitol Building
Hartford, Connecticut 06115

The Honorable Ernest N. Abate
Speaker of the House of Representatives
Room 203, State Capitol Building
Hartford, Connecticut 06115

Dear Governor Grasso, Senator Fauliso and Representive Abate:

It gives me great pleasure to transmit to you the Council on Environmental Quality's Fifth Annual Report.

The report covers a variety of past activities and environmental concerns. From the CEQ's involvement, it appears that the major issue facing the state in the 1980s will be hazardous materials. This topic has and will continue to have a profound impact on our environmental quality, presenting an even greater challenge to the responsible management of our resources. Many state programs will need to be coordinated to eliminate the long-term dangers presented by these materials.

Among the other important environmental issues which the state must grapple with is its serious air pollution problem. Transportation systems should be developed so that both air quality standards can be met and economic development encouraged. Farmland preservation as well as recreation and open space are becoming more important as we move into the 1980s. Another issue that will require assessment is the handling of the Connecticut Environmental Policy Act's environmental impact evaluations by the state agencies.

The Council has worked on a number of issues in the past year brought to us by citizen requests. The Council has been able to provide an impartial forum where citizens of the state can voice their concerns.

It is hoped that this report will be of assistance to you and to members of the public. Connecticut has grown and prospered because of its excellent quality of life. As we plan for the future, environmental considerations play a major role.

Finally, members of the Council would like to thank the many people who volunteered their time to help in our responsibilities. We would like to thank the Department of Environmental Protection, the Department of Transportation, the Office of Policy and Management, and the Department of Health Services for their cooperation and the members of the other state agencies that we have worked with during this past year.

Sincerely,

Donald L. MacKie

Donald L. MacKie
Chairman

MEMBERS

Ronald F. Angelo
Wethersfield

Donald Blanchard
Stamford

Charles W. Flynn
New Haven

Douglas Kelly
Hartford

Grace Lichtenstein
Rowayton/Norwalk

Donald L. MacKie, Chairman
Avon

Edward Rice
Uncasville

Maxine Weinstein
West Hartford

Domenic J. Forcella
Executive Director

FORMER MEMBERS

Mary Ann Dickinson
Wallingford

Jeannine B. Robertson
Formerly of Westport

Sidney Van Zandt
Noank

Casimo D. Caso
Winsted

Wm. C. Harding
Plainfield

Acknowledgements

The Council wishes to express its sincere appreciation to the contributors who gave their time to aid in the preparation of this report. Without their assistance and interest it could not have been prepared.

We would like to extend a special thanks and our best wishes to Mary Ann Dickinson, former CEQ Executive Director. Her help, organization and interest have been greatly appreciated.

Our thanks also to Lois Jainchill of the CEQ staff who performed many functions in the compiling of this report.

We would like to thank the CEQ interns for their contributions - Tina Suarez-Murias for her work on the Air and Water Sections; Paul Susca for his work on the Hazardous Materials Section; and David Satler for his work on the Solid Waste Section. Other interns who made contributions were Terry Greene, Beth Howland and Katy Roessner.

And finally a word of thanks to the members of the Department of Environmental Protection for their help in providing materials to the CEQ for our report.

Preface

In its Fifth Annual Report, the Council on Environmental Quality addresses a number of environmental issues of 1979 and the programs and methodologies in existence or being implemented to address these concerns. This report is intended as an update and synopsis of complex issues rather than an in-depth analysis of DEP programs. As in prior years, an attempt was made to avoid duplication of the Administrative Report to the Governor, which carries detailed summaries of DEP's overall activities.

During 1979, the Council suffered budgetary and staffing loses. These fiscal and staffing constraints, as was the case with many DEP units , limited this agency's ability to carry out its statutory mandates. Nevertheless, given the manpower and fiscal resources, the Council has been able to do some trend analysis and program evaluation.

The CEQ consists of nine citizen members, five appointed by the Governor and four by the leaders of the General Assembly. The Council is assisted by a full-time Executive Director and Secretary and full-or part-time student interns, who serve for varying lengths of time. Perhaps the best way to describe CEQ's purely advisory role is to say it is both "ombudsman" and "watchful state entity" for environmental protection concerns. As set forth in the Connecticut General Statutes, the Council's specific responsibilities include:

1. The investigation of citizen complaints on environmental matters brought to its attention (Section 22a-13);

2. The review of all environmental impact statements prepared under the Connecticut Environmental Policy Act for state agency construction projects (Section 22a-1d);

3. The review of state agency construction plans, especially those plans which involve "the paving or building upon of land not previously paved or built upon"(Section 22a-12);

4. The review of applications for electric generating, transmission and cable TV facilities submitted to the Power Facilities Evaluation Council (Section 16-50j(f); and

5. Preparation of an annual report on the state's environmental quality, to be forwarded to the Governor and the General Assembly (Section 22a-12).

Section 22a-12(a) of the Connecticut General Statutes requires the Council to prepare and submit annually to the Governor and the General Assembly an environmental quality report which sets forth the following:

(1) the status of the major environmental categories including, but not limited to, the air, the water, and the land environment;

(2) current and foreseeable trends in the quality, management and utilization of the environment and the effects of such trends on the social, economic and health requirements of the state;

(3) the adequacy of available natural resources for fulfilling human and economic requirements of the state in light of projected population pressures;

(4) a review of the programs and activities of the state and local governments and private organizations with particular reference to their effect on the environment and on the conservation, development and utilization of natural resources; and

(5) a program for remedying the deficiencies of existing programs and activities, together with recommendations for legislation.

Annual Report Public Hearings

As an aid to gathering information for the Annual Report, public hearings were held by the Council. These meetings were chaired by Council members with CEQ staff in attendance.

This year the Council on Environmental Quality expanded its public hearings to four locations - Hartford on Oct. 10; Norwalk on Oct. 11; New London on Oct. 16; and New Haven on Oct. 18. The purpose of the hearings was to solicit public testimony on the CEQ's role. The public hearings also generated a number of citizen information requests.

Generally concern was expressed for air quality and the direction of the state's air program; hazardous materials management; nuclear radiation; proper maintenance of state parks, particularly those of an historic nature; delegation of certain DEP duties to local health officials; urban-related problems; watershed lands and water quality; better training and functioning of permit hearings; improved public participation programs; streamlining of the permit process; and some individual complaints of a more specific nature.

One overriding comment was the support for the CEQ and its independent nature. More visibility for the agency was recommended at all hearings.

Introduction

During 1979, the state's environment faced many changes. While the initial topics of air and water still command our attention, new problems made an impact that demanded action. There was also a refining of the past activities to meet these changes.

More questions are being raised about air pollution. Does indoor pollution pose a greater threat than outdoor pollution? More and more these questions bring in the consideration of health, and all too often the medical community will not reach unanimity on harmful effects. In some cases, the environmental position must be reevaluated in light of such discussion.

The State Implementation Plan for handling our air pollution problems was submitted to the Environmental Protection Agency. Public participation is still continuing to examine the plan and prepare for revisions. Changes were also made to the Indirect Source Permit Program which caused much debate and discussion.

The Coastal Area Management legislation was passed in 1979. This was the biggest piece of environmental legislation this session. Combining existing legislation with local controls, Connecticut has developed a unique method for protecting our coastline. An active group of citizen advocates have maintained their support and interest as the law becomes effective.

The past year has seen the emergence of "hazardous wastes" as the primary topic of concern in the state. As more information is being made available, we are finding that our waste generation and disposal has to be monitored very cautiously.

Now being referred to as the problem of the 80's, this area will have the attention of the state and local officials. It seems that we learn of a new substance each week that has harmful effects. The next step of setting up standards is underway but it looks like a long time before any conclusions can be reached.

Addressing hazardous materials has become an interdepartment concern. The effectiveness of two state agencies working in unison will have to be evaluated. From past experience, it appears necessary to designate one as the lead agency. This would provide the citizens of the state with more effective action. In the past, interdepartment bickering has lead to a loss of credibility and an increase in the fears of the residents.

The effects of hazardous materials have been far-reaching in terms of population, geography, and state agency participation. The challenge will be to respond to this environmental problem in a manner that solves as well as educates and eliminates problems of a similar nature.

Closely related to the hazardous materials problem is that of waste disposal. Locations of landfill facilities have caused much concern and debate. Compounding this issue is the need for locations for industrial waste. Establishing a credible way to locate disposal sites will be essential if citizen support is to be gained.

Because of recent incidents of water contamination due to landfills, the general trend has been one of suspicion. The state will have to develop a methodology for siting these disposal areas that can restore the lost confidence caused by today's problems.

Landuse and regional impacts were brought up to the forefront with the number of shopping mall proposals in the state. Large-scale development has more than a local impact. Many urban centers were fearful of losing their economic base to these proposals.

Assessing regional impact became a controversial issue. The state has no way to evaluate or protect neighboring communities from the actions of each other. Any attempts by the state to get involved would appear as an infringement on local autonomy.

The Connecticut Environmental Policy Act is just beginning to see its regulations take effect. While the impact is yet to be assessed, what is certain is the need to maintain vigilence in its enforcement. State agencies with little experience in this area are in need of aid and expertise.

A decision has to be made as to when does the state become involved. Many times, although not directly involved, a judgement is made by the state on some aspect of the project. This will have a far-reaching impact on the large-scale development projects that have flooded the state. In the protection of our environment, it seems only fair that private development should react the same as state development.

Environmental protection has always shared the spotlight with economics. Now we find the topic of energy being given equal billing. The problem arises when instead of conserving energy the discussion centers around ways of expanding our production of it. The conflicts that are beginning to surface will have to be addressed and resolved.

As different areas of environmental concern surface and require attention, the other areas must react accordingly. Changes in program operation will be necessary to take into consideration all the effects of these newer concerns.

Activities of the Council

The Council on Environmental Quality reviews and comments on various plans and proposals sent by the Department of Transportation and the Office of Policy and Management's State Clearinghouse.

The CEQ has the opportunity to comment on transportation projects in various stages. The design meetings and draft environmental impact statements are two of these methods. CEQ receives urban system projects and Federal Highway Administration proposals for comment.

CEQ also has the responsibility for review on all Environmental Impact Evaluations (EIEs) required by the Connecticut Environmental Policy Act. The evaluations describe the potential environmental effects of proposed actions of state agencies.

Other material received for comment by the CEQ include IBDs and A-95s. Industrial and Business Development (IBDs) are program applications involving grants to municipalities to facilitate the planning of development projects, such as industrial parks or business expansion. These are commented on by the CEQ. The grants are from the Connecticut Department of Economic Development.

A-95s are a preliminary form sent to state agencies for an initial review of a project, which occur when federal money is involved. The reviews take place very early in the development stages of the applications. They can point out areas where further study must be done during the application process, thus hopefully eliminating later and perhaps more costly problems. As with all programs, well thought out and written regulations, quality review personnel, and continued quality monitoring are imperative.

In addition, under Section 16-50j(f) comments were sent to the Power Facilities Evaluation Council concerning the siting of a telecommunications tower in Monroe and a receiver site in Glastonbury.

Applications for licensing from the Federal Energy Regulatory Commission also are sent to the Council. These applications have a section for opening the power company land to usage by the public. This is the first time this requirement has been made, and a comprehensive planning effort by the state and the utility company should insure proper usage of these lands.

The CEQ also handles citizen complaints. Many of the areas that are discussed in this report and the recommendations are a direct result of citizen input. It is felt that the work done by the CEQ as an ombudsman is the greatest benefit to the state's citizens. The Council can be used as a sounding board for problems, a place to bring people and state agencies together, or a meeting place for future policy discussions.

The CEQ has the responsibility for bringing out the opinions made known to it by interested citizens. This is done through its participation on various committees and by its attendance at conferences and seminars. With two of the state's major issues being air pollution and hazardous materials, CEQ has been given membership on the State Implementation Plan Revision Advisory Committee and Congressman Toby Moffett's Hazardous Materials Taskforce.

The CEQ also appeared at or sent position papers to a number of public hearings and meetings. Some of these were (1) Environment Committee Public Hearing on Coastal Management Legislation; (2) July 24 Branford Planning and Zoning Hearing; (3) July 24 Public Hearing on Proposed Indirect Source Revision. The staff also conducted on-site visits to the Stamford Post Office Proposed Site; the Upjohn Chemical Company Plant; the McQueeney Apts. in New Haven; the North Haven Mall; as well as meetings between state, local and DEP personnel concerning environmental matters.

Recommendations Summary

The Council on Environmental Quality has included in their Annual Report recommendations about what it feels can aid in the enhancement of the state's environment. These recommendations are arrived at from the various activities of the CEQ. Most of the suggestions come from involvement in citizen requests. It is sometimes this third party involvement of CEQ that gives the overall perspective to environmental problems.

Many of the Council recommendations in its last Annual Report have been acted upon, some by the DEP and some by the Legislature. We hope that this year's recommendations will receive that support. The Council would also like to offer its aid whenever possible to help implement these recommendations.

PART 1: HAZARDOUS MATERIALS AND SOLID WASTES

Hazardous Wastes

The State should establish a comprehensive and effective hazardous waste management program. Adequate staffing and public input are two components that are needed to help the program succeed.

Carcinogenic Substances

(1) A technical team be established to aid the various state agencies that are required to take surveys. The compilation of the data and its presentation is necesaary for any program to be effective.

(2) In laws where questionnaires are to be used, non-compliance must be taken into account. The Carcinogenic Substances Act has no such provisions. To aid in this information gathering, a penalty should be imposed for non-compliance. This can be financial or as stern as a permit revocation.

(3) The industries using hazardous substances be strictly monitored. They cannot be treated the same as our traditional manufacturing industries.

Solid Waste

(1) The CEQ believes solid waste to be one of the two dominant environmental quality problems confronting the DEP, and requires a greater expenditure of staff resources if the problems are to be solved in time.

(2) The CEQ recommends that Public Act 78-67 be amended so that the controversy over what constitutes a "reasonable alternative facility" no longer exists and so that a zoning ordinance does not supersede the siting of a landfill in high priority regions.

PART 2: WATER-RELATED ACTIVITIES

Dredging and Dredge Material Disposal

(1) To implement the Interim Plan and to develop the long-range management plan are to be encouraged. However, a time frame for development of the long-range plan should be established. It would be appropriate and functional to coordinate plan development with achievement of Clean Water Act goals by 1983. The plan must be integrated with implementation of federal Coastal Zone Management (CAM) goals and state coastal area management (CAM) goals.

(2) There are many innovative alternatives for land disposal of dredged material from small projects. Presently there is no active investigation of land disposal and it is sorely needed. The Connecticut Department of Environmental Protection should play a lead agency role in research and development of land disposal alternatives. Subsequently, this information should be made available to dredging applicants under a program that provides technical assistance and has input in regulatory decisions.

PART 2: WATER-RELATED ACTIVITIES (continued)

Dredging and Dredge Material Disposal

(3) Preliminary results show that capping, when controlled and properly monitored, can be an effective technique in physically isolating potentially degrading spoils. Therefore:

(a) As the primary permitting agency and as the manager of the open water disposal sites, the Corps should take on the responsibility of coordinating the timing of various dredging projects that could be linked in a capping procedure.

(b) Class III material, when it is disposed of in open water, must be capped immediately.

(c) Monitoring must remain an integral part of the capping process, not only to collect research data but also to insure technical precision.

(4) The spoil classification system is an integral part of the Interim Plan. However, there are still ways that it can be refined.

(a) Sediment type is a major determinant of class. A program to develop harbor sediment mapping is needed to facilitate classification.

(b) Better methods for assessing hazardous wastes in dredged material must be developed. Criteria for known contaminants must be set. This research project should be a joint effort of the Department of Environmental Protection and the Department of Health.

(5) The CEQ emphasizes the necessity for long and short-term evaluation of the effects of open-water disposal and encourages continued research under the DAMOS Program to achieve these answers. Connecticut, as a state, should fully support these efforts and apply what pressure it can to encourage federal funding.

PART 2: WATER-RELATED ACTIVITIES (continued)

Dredging and Dredge Material Disposal

(6) The alternative of containment facilities proposed by the Corps to hold dredged material is a new technique. CEQ requests that a composite EIS be prepared when such structures are contemplated seriously. Questions to address might include:

- As the spoils dewater, where will the leachate travel and what will it contain?

- Aerosols of biologically active pathogens could be created upon spoil, dewatering; How will this problem be addressed?

(7) A fee should be levied on the dredging applicant to help defer the cost of administration of the interim plan.

Filling and Erection of Structures in Tidal Wetlands

(1) A watershed protection fund should be established to contribute to the cost of flood control, sedimentation and erosion control maintenance of water quality, marsh creation and the enforcement of wetland and watercourse environmental regulations. The fund shall consist of monies collected from these sources.

(2) The Commissioner of the Department of Environmental Protection should promulgate regulations for the tidal wetlands and coastal waters legislation that are consistent with the goals and policies of CAM legislation. The regulations should include stipulations for payment to a watershed protection fund.

Stream Encroachment Lines

(1) The stream encroachment lines legislation must be strengthened. A method to insure timely and accurate encroachment line designation on watercourses and waterways in flood prone areas must be incorporated.

PART 3: AIR QUALITY

Indirect Source Program

(1) The CEQ would recommend that a review be given to see if large-scale attractors such as shopping malls and industrial complexes be made part of the Indirect Sources Program. The state must be prepared to deal with the pollutants that these developments cause.

(2) A meaningful method of public participation must be found that can guarantee the acceptability of the regional Transportation Plan. The consistency of the Transportation Plan should also be made known, so that they will influence development instead of development determining highway projects.

Issues in Good Air Quality

(1) CEQ recommends that the Governor name an existing agency as the lead investigator to work collaboratively with the involved parties and agencies to develop a comprehensive waste oil recycling program for Connecticut.

PART 6: CONNECTICUT ENVIRONMENTAL POLICY ACT: AMENDMENTS

(1) Determine if, in issuing a permit, an agency has exercised judgement or discretion as to the propriety of that action.

(2) Determine, if this is the case, whether the agency must conduct an environmental impact evaluation.

(3) Determine to what degree this exercise of judgement or discretion must be to qualify as state involvement in a project.

(4) If there is state involvement, determine whether the state agency or mall developer is the sponsoring agency.

(5) Require an environmental impact evaluation from the sponsoring agency when state property is under consideration.

PART 6: CONNECTICUT ENVIRONMENTAL POLICY ACT: AMENDMENTS

(6) Furthermore, the Council suggests that major private development be required to comply with CEPA regulations. Developers should be asked to give proof that they will be able to mitigate or compensate for adverse environmental impacts when constructing these projects.

(7) It is felt that the timing of statements and evaluations should be done before the decision-making begins.

PART 7: URBAN ISSUES

Malls

(1) An environmental impact evaluation should be required of those mall developers who require state funds to finance any part of the construction costs.

(2) Any developer proposing a large mall should provide an economic impact analysis to show how his development will not adversely impact commercial interests in the area (ie. in excess of normal competition). This analysis should include his marketing report on the retail capacity in the area.

(3) The state investigate other permits or studies that should be required of a large-scale development to insure an environmentally sound project.

(4) Because a mall or any large-scale development decisions can impact greatly on the future, Regional Planning Agencies (RPAs) should have mandatory review powers.

(5) Make available to local boards and commissions, programs to help the members sharpen their skills for large-scale development decisions.

Farmland Preservation

(1) The state should encourage a national commitment to farmland preservation. As with all environmental

Farmland Preservation (continued)

(1) laws, consistency is needed so that one state will not be doing its share while others mismanage and gain economically.

PART 8: CONSERVATION AND PRESERVATION

The Council on Environmental Quality wishes to recommend the following:

1. That the Legislature adequately fund the programs of the Division of Conservation and Preservation, and that these programs be given a priority emphasis.
   Needed positions, particularly those for which federal matching money is available, should be funded and established immediately. Adequate funds should be provided for sufficient staffing of parks and development of recreational facilities.

2. That the Legislature consider establishing a fund for the collection of the unrefunded marine fuels tax for express use of the Conservation & Preservation Division, to be supplemental to their existing funding and to be used for development of new recreational facilities.
   These unclaimed and unrefunded marine taxes are simply channeled into the highway fund unless claimed by the individual boat owner with receipts to prove the gasoline purchases were for marine use. It has been estimated that 1/2% of the total gasoline sales tax revenues are due to boating activities, and that a refund could amount to as much as $1 or more per year. This money could be funneled back toward the user groups who unfairly paid the tax in the first place; it should not be allowed to meld into the general transportation pot. If established (Maine, Minnesota and North Caroline has already done so), this fund could provide a sorely needed source of recreational revenue.

3. That future trends be carefully monitored to prepare the state for further recreational facilities. Purchase of new property or development of present sites may be necessary. Letting the population have maximum safe use of our resources is to require preparation so that adequate environmental consideration is provided.

Connecticut Indian Affairs Council

The CEQ would like to see the Connecticut Indian Affairs Council work on two areas of outreach:

(1) Assist in legislative training for the Indian tribes on a local level and increase their governmental knowledge on a state and local level.

(2) Raise the awareness level of the state citizens concerning our Indian history.

PART 9: DEP UPDATE

Lead Agency Concept

Because communication is so essential to the problem solving abilities of the state, the Council on Environmental Quality makes the following recommendation:

(1) When more than one jurisdiction is involved, be that interdepartment or intradepartment, a lead agent shall be designated. One person is necessary to coordinate the activities of all responsible parties. This is the person who will (a) control the project; (b) decide what is to be done; (c) set the priorities. The designation of a lead agent will help reduce the conflicts between the various jurisdictions.

(2) The CEQ would also like to see the State Health Laboratory become a State Laboratory. This is necessary because of the responsibilities it has to a number of state agencies. Many state agencies who use the lab would support such a change as this.

Lead Agency Concept (continued)

But the reality is that they will not make such a public suggestion because of departmental courtesy.

A separate State Laboratory would:

(1) Put all state departments on an equal basis in terms of prioritizing their samples;

(2) Stabilize the number of employees by not having an ease of transfer to the parent agency;

(3) Place the responsibility for the lab actions solely on the Director and his staff;

(4) Encourage all state agencies to centralize their lab usage knowing the lab procedures (prioritizing, analyzing, reporting) will be the same for all departments.

Part 1:

Hazardous Materials & Solid Wastes

SECTION 1: HAZARDOUS WASTES - CLOSING THE CIRCLE

Closing the Circle

Presently, hazardous waste management is the greatest gap which exists in the protection of our environment. Programs are in place and strategies have long existed to regulate the random dumping of pollutants into our waters and our air. Partly as a result of these programs, our society is producing an array of liquids, sludges, and solids which must be carefully disposed of as they pose an undetermined danger to Connecticut's environment and to the health of her citizens. The United States Environmental Protection Agency reported to Congress in 1973 that a hazardous waste management problem existed and that it was increasing in magnitude.[1]

What is hazardous waste? The term refers to any garbage, refuse, sludge, or other discarded material, which, because of its quantity, concentration, or physical, chemical or infectious characteristics may "(A) cause, or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."[2]

Wastes are identified as hazardous if they are toxic, ignitable, corrosive, reactive, explosive, or infectious. (Radioactive wastes are regulated by the Federal Department of Energy, and are not addressed here). Toxic wastes produce injury by contact with or accumulation in the body of an organism. Ignitable wastes generally consist of contaminated solvents. Corrosive wastes can eat away materials by chemical action. Reactive and explosive waste are unstable and may undego violent chemical change. Infectious wastes come from health care facilities, laboratories, and sewage treatment plants.

The U.S. EPA estimates that 10 to 15 percent of industrial waste qualifies as hazardous. The bulk of industrial wastes produced in Connecticut are metal hydroxide sludges, hydrocarbons, other chemicals, and paints and are produced by industries dealing with metals, machinery, transportation, and chemical manufacturing. A recent study of industrial wastes in Connecticut reported the generation of 13 million gallons yearly in the Greater Hartford, Bridgeport, and Waterbury regions alone. That volume is far from being complete for the state. The same study found that the bulk of metal hydroxide (which composed 50% of the total) was disposed of in violation of state regulations and/or through deficiencies in state law.[3]

Concern for the appropriate handling of hazardous wastes is based upon the public health and environmental consequences of improper handling. Depending upon the composition, concentration, form and method of disposal of hazardous wastes, effects may range from cancer and birth defects to fishkills and disruption of ecological systems. Certain organic chemicals, even when diluted in groundwater to a few parts per billion can render water supplies dangerous to health. Some toxic metals can slowly accumulate in tissues and then cause detectable damage. Finally, some wastes can be rendered virtually immobile in the environment while others disposed of in the same manner can infiltrate ecological and human systems.

Recognizing the Problem

As with many other public safety and environmental problems, events have spelled out a crisis before programs are in place to present a crisis. The infamous Love Canal incident has been accompanied by a number of hazardous waste stories in Connecticut.

In Plainfield, six persons were arrested and one man ordered to pay over $600,000 to clean up and study the effects of a hazardous waste dump. The landowner had allowed the burial of 1,600 barrels of chemical waste in a wooded area.

A shopping center developer in Torrington unearthed former asbestos sludge lagoons and refuse piles left behind by the previous owner, a gasket manufacturer. The hazard presented by airborne asbestos to workers and playing children has not been determined.

Groundwater in part of Canton has been contaminated by a chemical waste dump. The present landowner has been ordered to clean up the site, and the town is paying to extend a water main to affected well users. Sites such as this are probably very common in the state, and more are expected to crop up in the future.

Asbestos sludge was used as fill material in at least eleven sites in Stratford. Before the health hazards of asbestos were recognized, the sites, some open and some closed, were scattered all over the town. Young children were known to play at some of the sites.

Hazardous wastes have long been dumped anywhere in order to make disposal as inexpensive as possible. Hundreds of such sites are scattered about the state, and at present there is no exhaustive inventory of those sites. Along with hazardous wastes currently being generated, old abandoned sites represent the other half of this two-sided problem.

The Sources

The recent study which reported the generation of 13 million gallons of industrial waste annually in part of the state is probably the most comprehensive to date. Even that analysis is based upon a 52% response rate to questionnaires sent to about half of Connecticut's industry. Although more exhaustive studies are currently underway, it seems that a large percentage of Connecticut's industrial waste -- petroleum by-products, waste oils, metal hydroxide sludges, and other chemical wastes -- are hazardous.[4] In the last decade or so, with the implementation of Clean Air and Clean Water programs, waste generators have been prevented from legally dumping wastes directly into the air and water. As a result, current environmental protection programs have contributed to the emergency of the hazardous waste problem.

What is currently being done with industrial wastes in Connecticut? Depending upon the nature of the waste and the economics of the individual situation, wastes are recycled, hauled away to municipal and industrial landfills, lagooned and landfilled on site, discharged into streams or sewer systems, or brought to industrial waste treatment firms. The transportation of waste presents its own problems, and improper waste storage can lead to airborne contaminants, odors, and fire hazards. Three industrial waste treatment firms are currently located in the state, but some residues still have to be hauled to New York or New Jersey for ultimate disposal. Secure chemical landfills, where wastes are entirely prevented from seeping into groundwater supplies, are non-existent in Connecticut.

The Response

The Congress of the United States, recognizing the need for sound solid waste management, passed the Resource Conservation and Recovery Act (RCRA) in 1976. Subtitle C of the Act calls for the management of hazardous wastes. The U.S. EPA is currently developing regulations for that program. Section 3006 of RCRA calls for the federal EPA to delegate hazardous waste management authority to states with

equivalent programs. Connecticut is trying to develop such a program.

Late in 1978, the Hazardous Materials Management Unit (HMM) was created within the Department of Environmental Protection on a trial basis. The new unit consists of personnel from DEP's Solid Waste, Water Compliance, and former Pesticides Control Units. The HMM Unit's ongoing management program consists of licensing waste haulers, and providing assistance in cleaning up chemical spills and old dump sites which pose a danger to the public. The Unit spends a large part of its time "firefighting": responding to hazardous materials problems as they emerge. No personnel are committed to enforcement inspections for the licensing of waste hauling, treatment and cleanup outfits.

A two-year EPA planning grant is currently being used by HMM to develop a state program to receive authorization under Subtitle C of RCRA. After the EPA promulgates Subtitle C regulations (presumably in April 1980), HMM will draft an authorization application and solicit public comment on the package. In order for the state program to be authorized by EPA, it must incorporate legislative authority, adequate resources, published criteria and standards, established permit mechanisms, surveillance and enforcement, and a manifest system.[5] A manifest system tracks the path taken by all hazardous waste from the point of generation to the point of ultimate disposal, by requiring a record of the waste's history on a manifest form. Not all of these program elements will be required for "interim authorization", for a period of two years, but final authorization will call for all of these components. The Hazardous Materials Management Unit does not expect to operate a manifest system in the state for another year or two.

The HMM Unit will release in 1980 a list of all suspected or confirmed hazardous waste dumping sites in the state in order to plan for their proper management. The Unit will then examine that list to determine which sites must be dealt with first. The investigation and management of those sites will continue for several years. At the same time, the list will be revised to a comprehensive inventory of all hazardous waste dumps by January 15, 1981, as required by the new hazardous materials bill.

The hazardous waste legislation (P.A.79-605) signed on July 3, 1979 by Governor Grasso, makes a number of provisions for hazardous waste management in the state. In addition to requiring a comprehensive list of dump sites, the bill:

(1) makes generators of hazardous waste responsible for the safe and sanitary disposal of those wastes;

(2) expands the list of products and wastes regulated by DEP to hazardous wastes;

(3) gives the Commissioner the authority to contract the cleanup of spills and dumps, and recover the costs by legal means;

(4) establishes a revolving Emergency Spill Response Fund to provide money for clean-up, and;

(5) authorizes the Commissioner to establish programs and enforce regulations to carry out the intent of Subtitle C of RCRA.

A number of activities are currently underway to help the state develop a hazardous waste management program. In addition to the activities of the Department of Environmental Protection, the State Department of Health Services has been involved in a Surface Impoundments Assessment, which is scheduled to be completed early in 1980. There is some concern, that as testing methods improve, health effects of hazardous waste disposal will begin to crop up more and more.

The Connecticut "208" Program (Areawide Waste Treatment Planning Board), which conducted the industrial waste inventory referred to earlier, has contracted a $100,000 study to provide the groundwork for the planning and construction of the proper configuration of waste treatment, storage, and disposal facilities in Connecticut.

The New England Regional Commission (NERCOM) has released a consultant's report on the hazardous waste situation in New England. The report presents a process to select hazardous waste management sites and will make recommendations regarding the types and number of facilities needed in the New England states.

Cost of Proper Management

Up until now, the major consideration in selecting disposal sites and methods has been expense. In the absence of regulations regarding the disposal of some hazardous wastes, and without diligent inspection of disposal operations, waste generators and handlers have often chosen the cheapest disposal alternative, sometimes involving clandestine dumping. The cost of disposal in a conventional sanitary landfill (improper for some wastes) ranges from $3 to $8 per ton (See Table 2). The nationwide cost of new hazardous waste regulations

is expected to reach the hundreds of millions of dollars annually. In order to present a meaningful idea of that amount, the impact of Subtitle C regulations has been examined as the ratio of estimated increase in hazardous waste management cost to annual production value. A consultant's report, prepared for the U.S. EPA, used the following ratios to assess economic impacts:

high impact	2.0%
moderate impact	0.5% - 2.0%
low impact	0.5%

Table 1 lists the estimated added costs for major Connecticut industries to comply with the disposal requirements of RCRA Subtitle C. As one can see, the impact on Connecticut industries is likely to span a wide range.

The issue of the economic burden of hazardous waste regulation has several facets. While cost-benefit analyses on the federal level have been aimed at bringing compliance costs into line with health and safety benefits of compliance measures, there is concern everywhere about the impact of new programs on production and employment. States which develop stringent waste management programs may be less attractive to businesses seeking to locate in their areas. On the other hand, it has been argued that industries will gravitate to states with more restrictions on waste disposal in the hope that the tighter requirements will limit the potential liability if disposed wastes should become a real hazard. The Connecticut 208 program is proposing to study the feasibility of an extension program for the Department of Economic Development to provide technology transfer service for hazardous waste management. Such a service would help industries select low cost management options while complying with regulatory requirements. Table 2 shows that disposal costs depend upon the method of treatment or disposal.

TABLE 2

Cost of Technology Options

	Cost per ton
Secure chemical landfill	$30-$55
Secure chemical landfill	$75-$265 ($110 typical)
Incineration (land-based)	$10-$30
Chemical Fixation	
Physical, Chemical, Biological Treatment	Variable

TABLE 1
Estimated Subtitle C Disposal Costs for Wastes
Produced by Major Connecticut Industries

Industry	Estimated incremental waste management cost as % of 1977 production value**	Hazardous substances***													
		As	Cd	Chlorinated hydrocarbons*	Cr	Cu	Cyanides	Pb	Hg	Misc. organics	Se	Zn
Metallurgy	0.0-1.7	X	X		X	X	X	X	X	X	X	X
Paint and dye	0.3		X		X	X	X	X	X	X	X	
Pesticide	1.2			X			X	X	X			X
Electrical & electronic	0.3			X		X	X	X	X		X	
Electroplating and metal finishing	3.6		X		X	X	X					X
Chemical manufacturing	0.0-3.6			X	X	X			X	X		
Explosives	9.0	X				X		X	X	X		
Rubber and plastics	0-0.3			X			X			X		X
Battery	0.1-0.4		X					X	X			X
Pharmaceutical	0.2-0.3	X							X	X		
Textile	0.2-1.0					X	X			X		
Petroleum and coal	0.0-2.6	X		X				X				

* Including polychlorinated biphenyls.
† For example, acrolein, chloropicrin, dimethyl sulfate, dinitrophenol, dinitrobenzene, nitroaniline, and pentachlorophenol.

**from Table II-5 pp 11-14 Draft Economic Impact Analysis, Subtitle C, RCRA

*** from Report to Congress

Management Options

Besides the temporary storage of hazardous wastes, there are a number of acceptable treatment and disposal methods available.

Physical treatments generally separate waste components, ideally producing reusable materials, and at least reducing the level of hazard of the waste. Distillation can be used to remove solvents; this expensive process produces a high-quality waste. Filtration, sedimentation, and flocculation are used to remove solids from a waste, although the mud produced can be of a high hazards, and must be further treated or disposed of. Dialysis and electrodialysis involve the separation of materials using a natural or artificial membrane.

Chemical treatments separate waste components or change their composition in order to reduce the hazard of waste. Ion exchange can be used to remove trace elements from solution, after which those elements can be recycled or disposed of separately. Precipitation removes some of the dissolved chemicals by a chemical reaction. Neutralization makes acid or alkaline waste neutral, sometimes simply by mixing all of the waste streams of a plant and later treating with lime or an acid. This process reduces the caustic quality of waste. Oxidation and reduction methods reduce the hazard level of wastes by allowing toxic components to react in a controlled manner, using up the reactive capability of the chemicals.

Thermal treatments break down complex components into simpler, less toxic compounds. Pyrolysis involves heating to extremely high temperatures in the absence of oxygen. Incineration is a controlled burning process in which some energy can actually be recovered from the waste. Incineration can be particularly efficient in actually destroying certain hazardous waste components, but concern has been expressed about the elements which are released. A certain amount of waste oil is currently used as fuel in some Connecticut boilers. At this time, the Department of Environmental Protection is unable to impose restrictions on other toxics emitted by waste oil incinerators. If adequate regulations are not developed and enforced, this particular air problem can be expected to worsen, as hazardous waste disposal and energy recovery aims come to bear upon the disposal of waste oil.

Biological treatments utilize microbes ("bugs") to feed on organic wastes and convert them into less hazardous substances. Activated sludge involves a circulated, aerated mixture of "bugs and waste; aerated lagoons are mixed less but work in a similar fashion. Trickling filters provide large surface areas for microbial activity by spraying wastes onto rock or gravel piles.

Waste stabilization ponds are large, shallow basins where microbes feed on waste, although the effluent from these ponds is of a poorer quality. Depending upon the waste and the process, the effluent from biological treatment varies greatly; these methods generally constitute one step in a waste treatment process.

Virtually all of the methods listed above are volume reduction techniques, because they serve to reduce, rather than completely eliminate, the amount of hazardous material which must be disposed of. At this time, the residues must be landfarmed (which eventually releases them to the groundwater), injected into deep wells (which does not seem to be feasible in Connecticut), dumped into the ocean, or buried. The situation has been summarized as follows:

> "(Burial is not the ideal solution, it's not necessarily even a good solution, but, realistically it's the only solution we now have. The problem then is to regulate landfills in such a manner that potential problems created by escape of toxic materials are minimized."[6]

Burial involves placing wastes in tanks or lined pits, and covering with another impermeable layer. There is currently a heavy reliance upon this method, and that reliance is expected to continue. The Department of Environmental Protection currently has guidelines for the burial of some of the state's high-volume industrial wastes, and the authority to enforce those guidelines. The preferred methods for the management of any hazardous wastes are recycling and source reduction, but some residues will have to be ultimately disposed of -- probably in the ground. The main objective of the developing state program in this area will be to assure the burial of wastes in a manner which prevents the escape of toxics into groundwater or the air.

The Outlook

One major concern with hazardous wastes in the state is the likelihood that the incidents to date represent "the tip of the iceberg." Industries have been disposing of chemical wastes for decades, and a larger portion of these wastes has probably ended up in land disposal since the advent of air and water pollution programs. Metal hydroxide sludges, representing a large portion of Connecticut's industrial waste, are a byproduct of pollution control. The possibility we face is that the longer old dump sites exist, the more likely their leakage becomes, and the more incidents of contaminated soil and groundwater we are likely to see. Furthermore, since the sites which are now causing problems are old, and the chemical industry continues to grow, there will be a much greater number of potentially troublesome sites several years from

now. Because groundwater moves so slowly in some areas, once an aquifer is contaminated, it may take decades to flush out, even after the source of contamination has been removed. Even after contaminants are detected in a water supply, the health effects may be delayed for decades. For these reasons, hazardous waste management has been identified by many as the environmental challenge of the 1980's.

The recent reorganization within the Department of Environmental Protection, and the new hazardous materials bill show that the state is on its way in addressing the problem. Major in-house and consulting studies are underway, but EPA's delay in promulgating RCRA Subtitle C regulations has unavoidably prevented the state program from making more progress than was made in 1979. Although the new Hazardous Waste Management Section of HMM contains several new positions, a year after the reorganization, half of the Section's positions are vacant. If the state is to develop an effective program, staffing should be brought up to a reasonable level (see Figure 1).

One trend which is anticipated as the hazardous waste management program develops is an expansion of the industrial waste treatment industry in the state. Although the economic impact of the program in Connecticut has yet to be assessed, it does not seem likely that the possible employment gains from the new industry will represent the same kinds of jobs as those which may be lost if the new program has any major impacts on production. Nonetheless, it is reasonable to speculate that some jobs will be gained as the industry expands to meet the program's requirements.

Issues in the Developing Program

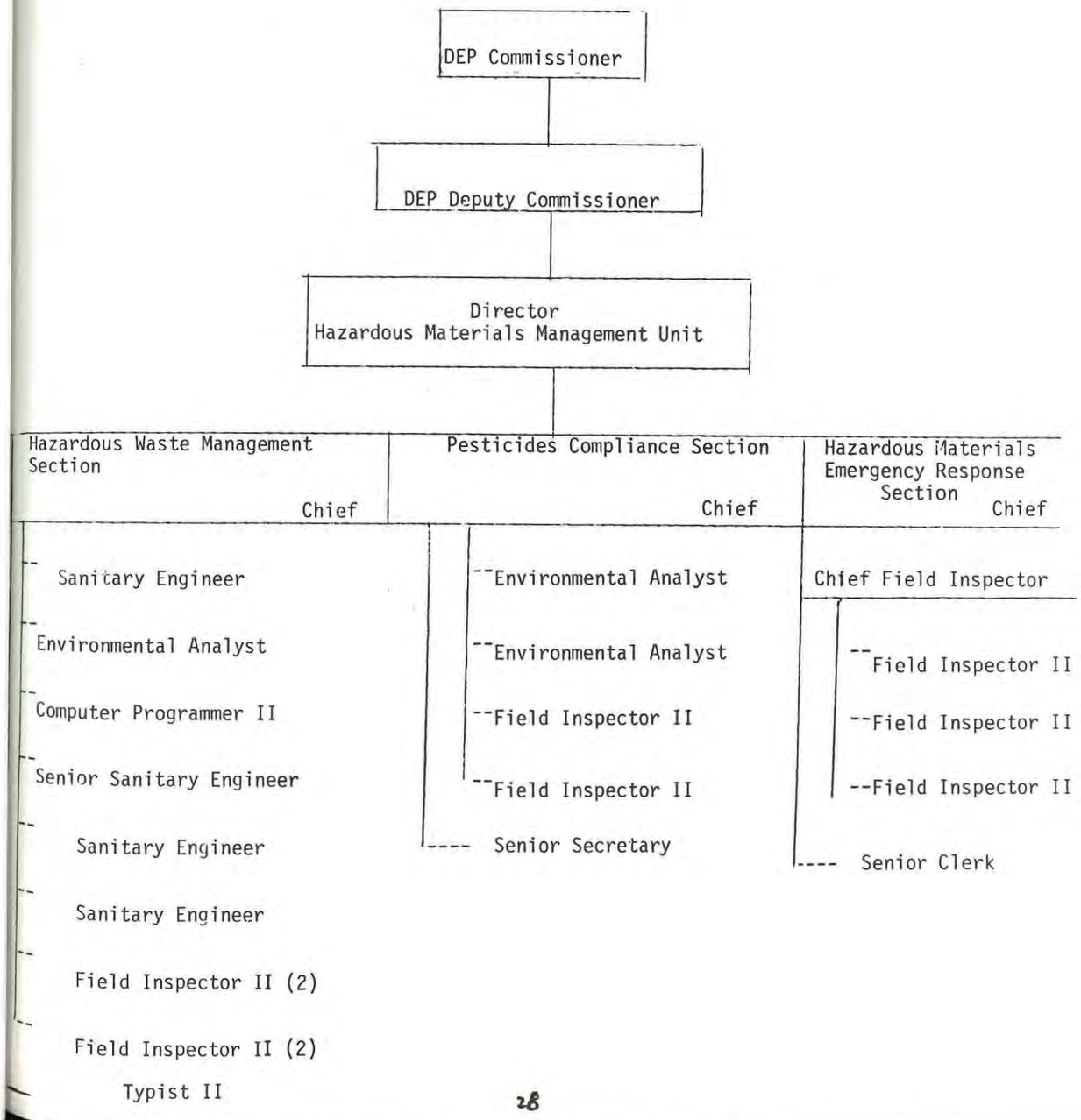
There is a number of questions which the state must answer, with the help of the public, in developing regulations to implement a new hazardous waste program. Every aspect of the developing program will interact with economic policy. While a federally authorized state program must be at least as stringent as a federal program, should Connecticut's standards be more stringent? Are Connecticut's environmental and population density such that we need a higher degree of assurance against damage? Would that mean that Connecticut industry would face a competitive disadvantage due to higher capital and operating costs? Could the state limit liability to a facility owner who complies with more stringent standards? Could a technology transfer program, such as the one mentioned earlier, eliminate the economic burden on the state's industry.

Over what period of time should the program be phased in? What is a reasonable amount of time for industry to come into compliance? How long would the state need to develop a full technical assistance capability?

FIGURE 1

ORGANIZATIONAL CHART

HAZARDOUS MATERIALS MANAGEMENT UNIT
CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION



Siting policy is certain to be a major issue in the development of the right configuration of storage, treatment, and disposal facilities in Connecticut. Who should decide where facilities will be located? Should the state be able to select optimum locations to reduce the overall hazard of waste transportation and handling? It now seems that industry will be selecting the sites, subject to state and local approval. Local governments currently can prevent the location of waste disposal sites in their towns. Should the public have the responsibility to accept will-built and well-operated hazardous waste facilities in their communities, as long as they enjoy the benefits of our technological society? Public acceptance is sure to be a major problem in facility siting.

Should hazardous waste facilities indeed be owned and operated by the private sector, or should the state government become involved in order to ensure safe and secure operation? Such a strategy might ensure more public input into siting decisions, but is it at all necessary?

Closure of waste disposal facilities presents several issues. How long after a site is closed should it be monitored for seepage of contaminants? Is twenty years long enough? Should the owner/operator pay for post-closure monitoring, or the state? Should the post-closure fund be created all at once before the site is opened, or in increments, as the waste is deposited? Should closed sites convert to state ownership? Who should decide which uses are appropriate for the land over former facilities? How can we ensure that closed sites will remain undisturbed -- indefinitely? Should liability for post-closure incidents extend indefinitely, or is twenty to thirty years enough?

Disposal sites are not the only hazardous waste handling facilities which need to be regulated in order to protect public health and the environment. The state will continue to regulate the transportation of waste, extending the current liquid chemical hauling program. As mentioned earlier, emission standards are needed for the burning of waste oils. Hazardous waste may pass through many steps on its way from "cradle to grave." All of these steps must be regulated.

It is hoped that the public as well as the state will address these issues carefully in developing a program designed to protect humans and the environment from hazardous wastes. The Council will look forward over the next several years to the timely arrival of a comprehensive and effective hazardous waste management program.

FOOTNOTES

1 Report to Congress

2 RCRA Sec. 1004

3 208 Phase I Report

4 Ibid. p.iv

5 State Decision-Makers Guide

6 Thomas H. Maugh II, "Burial is Last Resort for Hazardous Wastes." Science. 22 June 79, 1295-1298.

BIBLIOGRAPHY

Connecticut Areawide Waste Treatment Management Planning Board, Industrial Sludge Study Inventory: Summary (Phase I Report). July 1978.

Environmental Action Foundation and Natural Wildlife Federation, Wasteworks '78 Conference Proceedings.

Legislative Program Review and Investigations Committee, Solid Waste Management in Connecticut. May 1979.

Thomas H. Maugh II. "Burial is Last Resort for Hazardous Wastes." Science, Volume 204, 22 June 79, 1295-1298.

Thomas H. Maugh II. "Toxic Waste Disposal - A Growing Problem." Science, Volume 204, 25 May 1979, 819-823.

New England Regional Commission, The New England Regional Commission on Hazardous Waste Management Program Background Package. NERCOM, Boston, undated.

United States EPA, Hazardous Waste, A Guide for Obtaining Permits and Authorization for State Programs. 1979.

United States EPA, Industrial Sludge Study Phase II Report: Management, Analysis, and Impact of Industrial Waste Handling and Disposal. July 1979.

United States EPA, Office of Solid Waste, Draft Economic Impact Analysis, Subtitle C, Resources Conservation and Recovery Act of 1976. January 1979.

United States EPA, Office of Solid Waste, Report to Congress, Disposal of Hazardous Wastes. 1974.

United States EPA, Solid Waste Facts, A Statistical Handbook, August 1978.

United States EPA, State Decisionmakers Guide for Hazardous Waste Management, 1977.

SECTION 2: CARCINOGENIC SUBSTANCES

In working with hazardous materials, often times the Legislature and the Department of Health Services also become involved. One such instance was the Carcinogenic Substances Act 77-398.

The Act required that any person who uses or produces any carcinogenic substance shall make an annual report to the Commissioner of Environmental Protection and the Commissioner of Health Services. Carcinogenic substances were defined as: (See Carcinogenic Substances Reference Chart)

> 2-Acetylaminofluorene, 4-Amindiphenyl, Arsenic, Asbestos, Benzene, Benzidine, 3,3'-Dichlorobenzidine, 4-Dimethylaminozaobenzene, Beta-Naphylamine, 4-Nitrobiphenyl, N-Nitrosodimethylamine, Beta-Propiolactone, Bis (Chloromethyl) Ether, Chloromethyl Methyl ether, 4,4' -Methylene-Bis(2-Chloroaniline), Vinyl Chloride alpha-naphthylamine, Ethyleneimine, 1,2-dibromo-3-chloropropane, Acrylonitrile, and those substances identified by the Commissioner of Health Services.

The Commissioner of Health Services was required to promulgate regulations and to implement the act. To initiate the act, a preliminary survey was sent out in January of 1979. The problems that arose in trying to complete such a survey can relate to any survey work required of state agencies.

Most state agencies if required to take a survey have neither the manpower nor the expertise to properly carry out that function. It then becomes a learning process for the agency, success being how they can handle the trial and error method.

While the specific agencies, have the technical knowledge to determine what data should be collected, the methods of collection are not part of their responsibilities. The technical knowledge should be combined with an agency that has the capability to perform survey work. More topics, particulary in the hazardous materials area, are requiring knowledge of their whereabouts.

The CEQ would recommend that a technical team be established to aid the various state agencies that are required to take surveys. The compilation of the data and its presentation is necessary for any program to be effective.

Secondly, in laws where questionnaires are to be used, non-compliance must be taken into account. The Carcinogenic Substances Act has no such provisions. To aid in this information gathering, the CEQ recommends that a penalty be imposed for non-compliance. This can be financial or as stern as permit revocation.

The CEQ would also support that the industries using such substances be strictly monitored. They cannot be treated the same as our traditional manufacturing industries.

CARCINOGENIC SUBSTANCES REFERENCE CHART

Carcinogenic Substance	Possible Trade or Common Name	Possible Users
2-acetylaminofluorene	2-AAF	Pesticide and Medical Research Laboratories
4-aminodiphenyl	4-ADP	Rubber Processing, Chemical Research Laboratories
Arsenic	Arsenic trichloride Arsenic trioxide	herbicide, insecticide, alloys, dyes, glass manufacturing, ore processing, paints, paper industry, pharmaceuticals, preservative, soap
Asbestos	Earth Flax, Mountain Cork, Serpentine, Stone Flax, "fibrous talc"	asbestos, cloth products, brake and clutch lining, filler for plastics, insulating and fire-proofing materials, pipes, roofing, wallboard
Benzene	Benzol, Coal Tar Naptha, Phenyl Hydride	chemical synthesis, detergents, dyes and paints, explosives, fumigants, insecticides, lacquers and dope, leather, linoleum phenol, rotogravure printing, rubber, solvent
Benzidine	Benzidine dihydro-chloride Diaminobiphenol	plastics, rubber, dyes; medical research, and testing labs; other chemical products
3,3' -dichlorobenzidine	DCB	used in producing pigments for printing inks, textile dyes, plastics and crayons, paints, varnishes, aircraft and parts, commercial test labs
4-dimethylaminoazobenzene	Methyl Yellow	used in cancer research labs, biological and chemical labs, and as a dyestuff, medical and commercial labs
Beta-napthylamine	2-NA	used in rubber industry; contaminant of 1-NA; used in cancer research and chemical labs as a dye intermediate
4-nitrobiphenyl	4-NBP	cancer research labs
N-nitrosodimethylamine	Dimethylamine	rocket fuel synthesis, chemical additive for lubricants, softener for copolymers; cancer research

Beta-propiolactone	Betaprone (TM)	used in production of acrylic plastics, lab and drug research; sterilizing agent for plasma, tissue grafts, and surgical instruments
Bis (chloromethyl) ether	BCME	ion exchange resins, research and testing labs
Chloromethyl methyl ether	CCME	used in preparation of certain drugs and resins, analytical standard in labs; present during sugar purification
4,4'-methylene-(bis)2-chloroaniline	MOCA(TM)	used in manufacture of isocyana resins in the following indus-tries: plastics, aircraft, synthetic rubber and resins, radio and TV equipment, space and missle components; research labs
Vinyl Chloride	VC, Chloroethylene	aerosol propellant, chemical synthesis, manufacture of plastics, refrigerant, silk and paper coatings, varnishes
alpha-naphthylamine	1-NA, naphthalidine	chemical synthesis, dyes, rubber, toning prints
Ethyleneimine	Azirane, Aziridine, Dihydroazirane, Vinylamine, Azacylopropane	chemical synthesis, textiles
1,2-dibromo-3-chloropropane	DBCP, Nemagon, Fumagone, Nemafume	soil fumigant, nematocide
Acrylonitrile	Propene nitrile, vinyl cyanide, Fumigrain, Ventrox, cyanoethylene	chemical synthesis, plastics, synthetic rubber, surface coatings adhesives, pesticide fumigant

SECTION 3: PCBs

The discovery of high levels of PCBs (polychlorinated biphenyls) in the fish and sediment of the Housatonic River brought together the Department of Environmental Protection, the Department of Health Services, and interested citizen groups. This interest led the 1978 General Assembly to pass Special Act 78-50, which appropriated $200,000 to the DEP "for the purpose of studying alternatives for the elimination of sources of polychlorinated biphenyl contamination of the Housatonic River and its impoundments - Lake Zoar, Lillinoah and Housatonic, including examination of sediment transport and bottom removal."

Many suggestions were made for the types of studies that should be undertaken. Some of these included: the water and sediment of the Housatonic River; water supply concentration; fish; industrial waste sources; sewage waste sources; solid waste contributions; aerial increments; and movements within the river system itself. Also mentioned was PCB transport in the food chain.

To help channel the advice and input, a PCB Program Guidance Committee was formed. This consisted of members from the Department of Environmental Protection; the Department of Health Services; the Connecticut Academy of Science and Engineering; and PCB Watchdog Committee.

The goal of the Housatonic River PCB Program is to protect the health, safety and welfare of the citizens of Connecticut by producing base-line data which will enable governmental officials to develop strategies practicable for: (1) eliminating PCB discharge to the river, and (2) eliminating in-place PCBs from the river.

By January of 1979 it was decided to seek information on (1) how PCBs move through the river; (2) how much of a problem PCBs are to general health; and (3) the extent of PCB contamination in Housatonic River fish.

The first area concerning PCBs and the sediment was to be carried out jointly by the Connecticut Agricultural Experimental Station, the U.S. Geologic Survey, and the Department of Environmental Protection. The second area involving health effects would be handled by the Department of Health Services. The third topic encompassed a fish sampling and analysis program by the Departments of Environmental Protection and Health Services. Additionally, some work was done on a proposal by members of the DEP water Compliance Unit who had an interest in the macroinvertebrates contamination.

THE STUDIES

(1) Sediment

PCBs have a low water solubility and therefore do not travel very far in the water column. Research has shown that PCBs are readily absorbed onto the fine particles which become river bottom sediments. The water itself has very low concentrations of PCBs.

The Housatonic River PCB and Sediment Sampling Program became a joint effort of the Connecticut Agricultural Experiment Station, the United States Geological Survey, and the Department of Environmental Protection.

The goals of this phase are:

(1) To establish a data base for sediment concentrations and PCBs in the Housatonic River; and

(2) To study the role of various reaches of the river in Connecticut and Massachusetts in contributing PCBs to the system.

Besides determining the present concentrations of PCBs, the sediment program is investigating how PCBs are transported to the Housatonic River. This will lead to an approximate figure for the net increase in PCB loading.

In order to determine the movement of PCBs down the river, three daily suspended sediment stations have been established. In addition, the thickness and distribution of sediment in major river impoundments, reservoirs, ponds and lakes of the Housatonic River was determined through seismic reconnaisance profiling.

(2) Human Health

The Housatonic River has long been an active recreational area. It was known as an excellent fishing area with some of the state's best fly fishing spots. Because of the accumulation of PCB residues in fish, there may be a potential health hazard to the many fishermen and their families.

The health officials were alerted to this problem from earlier fishing testing. The PCB levels were found to be in some cases more than eight times the federal standard of 5 parts per million (ppm). Because of this data, the Connecticut Department of Health had signs posted along

(2) Human Health (continued)

the Housatonic River warning of the potential health dangers. The warnings caused reactions from the fishermen as well as the commercial establishments that depend on their trade. The warnings did not change everyone's habits. This federal action level has now been lowered to 2 ppm.

The ingestion of PCB contaminated fish may cause the residue to build up in humans. The Department of Health Services is conducting an in-depth study so that the state can take appropriate action. The Department of Health Services hopes to identify the severity of ingestion and the possible population at risk. In order to examine the biochemical effects of PCBs on people who have received non-occupational exposures, a case-control study will be conducted. Family members who eat Housatonic fish are being tested (via blood sampling) and asked to fill out a questionnaire. Volunteers were found to serve as a control group. Significant differences will be looked for between the groups when the testing is completed.

(3) Fish

When the high levels of PCB concentration were discovered in Housatonic fish in 1975-78, two actions were taken. The river was posted to warn of the potential health hazard and the trout stocking was reduced.

The Housatonic River PCB Fish Sampling Program concentrated on collecting samples through the summer of 1979. Ten warm water species (Largemouth Bass, Smallmouth Bass, Yellow Bullheads, and Carp) were collected in four reaches of the river. These collections occurred at the impoundments of Lake Zoar, Lake Lillinonah, Lake Housatonic and the Bull Ridge Impoundment. Trout will also be sampled from the Falls Village-Cornwall area. 400-500 samples were available to be analyzed.

The primary goal of the fish sampling program is to enable the Department of Health Services to determine for the 1980 or 1981 fishing season, which, if any, species of fish in specific areas of the Housatonic River are safe for human consumption.

(4) Macroinvertebrates

The one remaining area of information concerns the ways in which the fish accumulate PCBs. One possibility is the food chain. In May 1978, sample of two types of Housatonic River macroinvertebrates were collected. When analyzed their PCB content ranged from 18-30 ppm.

The testing was to be done primarily on the Caddisfly larvae of the family Hydropschidue. The larvae are filter feeders existing near the stream bottom. The reasons for this selection include: (1) abundance; (2) mode of feeding; (3) low mobility in the aquatic stages of the life-cycle; (4) relatively short life cycle; (5) easy identification; and (6) utilization by trout.

This organism spins a very fine net and would therefore be feeding on fine organize particles. Because it has been reported that PCBs in the sediments are concentrated in the finer particles, this may have an effect on PCB accumulation when compared to other species.

The study entailed setting up 10 sampling stations. These went from upstream of the Pittsfield General Electric Plant to immediately downstream from Lake Zoar Dam. A control station on the Farmington River was also established.

The degree of utilization by the fish of the Caddisfly larvae was also to be looked into. This was done by looking at the stomach content of the fish samples. The data from this study can then be compared to the fish and sediment studies.

HARMFUL EFFECTS OF PCBs

The effects of PCB residue in various animals has led to the health warnings issued in the state. Studies done in the workplace have shown that the occupational exposure does not cause the same effects that ingestion does. Research shows that occupational exposure causes greater health risks than does ingestion of fish.

A problem with PCBs is that when subjected to heat, impurities may form. One of these impurities is Polychlorinated Dibenzol Flurans (PCDF). THis is a suspected cancer causing agent. This may explain why the purer substances used in the workplace have a different result than the waste products found in the river sediments.

HARMFUL EFFECTS OF PCBs (continued)

A Health Effects Seminar was held in September 1979 in Hartford to present some of the available health information. This was hosted by the Department of Health Services and Congressman Toby Moffett's Office. Representatives of industry, government, academia, and the National Cancer Institute formed a panel to disseminate information and answer questions.

The conclusions from the panel were that their efforts showed no scientific proof that small amounts of PCBs ingested caused cancer. They did warn, however, that even though there was no carcinogenic proof, there are some effects and probably hazards.

Some of the conclusions from the seminar:

1. Large body of literature is available to answer questions.
2. Many differing opinions on the hazard present.
3. The impure PCB is the problem.

Also some warnings were given as to the areas to keep in mind when analyzing data:

1. Detectability does not mean toxicity.
2. Analysis methods important.
3. Animals metabolize PCB differently than man.
4. The more toxic materials accumulate faster.

THE RESULTS

The field work for the various studies has been completed and analysis will continue until the Spring of 1980. The data and its conclusions are expected to be complete in early 1980 for the four studies. The results of these studies will lead to the continued formation of the PCB Program.

NATIONAL LEVEL

PCBs have also received attention on the federal level. As mentioned earlier, the Food and Drug Administration has reduced the action level from 5 ppm to 2 ppm.

On May 31, 1979, in the Federal Register (44FR31514), the Final Rule for Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, and Distribution was published by the Environmental Protection Agency.

NATIONAL LEVEL (continued)

Specifically, the rule published May 31 does the following:

(1) prohibits the manufacturing processing, distribution in commerce, and the use of PCBs except in a totally enclosed manner after July 2, 1979;

(2) provides authorization for certain processing, distribution in commerce, and use of PCBs in a non-totally enclosed manner;

(3) prohibits, unless exempted by EPA, all manufacturing of PCBs after July 2, 1979;

(4) prohibits, unless exempted by EPA, all processing and distribution in commerce of PCBs after July 1, 1979.

When using the term PCB, the EPA established a concentration cut-off. This cut-off was set at 50 ppm, a change from their 1978 standards, which was 500 ppm. The PCB ban is now total in scope, from labeling to production to disposal.

Labeling

Most PCB items that contain 50 ppm. or greater PCBs must be labeled. PCB transformers containing 500 or greater PCBs are required to be labeled. Unmarked transformers are assumed to be a PCB-contaminated Transformer (50-500 ppm PCBs).

Equipment containing PCB capacitors does not have to be labeled unless the capacity is a large, high voltage type. Equipment produced after January 1, 1979 and containing a small PCB capacitor also requires labeling.

Recordkeeping

Facilities using or storing at least 99.4 pounds (45 kilograms) of PCBs in PCB Containers, one or more PCB transformers or 50 or more PCB High or Low Voltage Large Capacitors have to keep records of their disposition. These records shall be maintained for at least 5 years after the facility ceases using or storing. Owners or operators of disposal facilities must also keep records.

Disposal

Incineration and disposal in landfills are the prescribed methods for disposing of PCB items. Any liquid shall be drained

Disposal (continued)

from the items and incinerated. Disposal depends on the PCB concentration of the item, 500 ppm or greater should be disposed of in a secure chemical landfill; between 50 and 500 ppm should be placed in a good solid waste facility.

Small capacitors can be disposed of as municipal waste. The EPA has determined that the random disposal of small capacitors in municipal solid waste sites by householders and other infrequent disposers does not present an environmental hazard.

However, the disposal of large quantities of small PCB capacitors by commercial and industrial activities poses a larger environmental risk. Therefore, the EPA encourages these persons to voluntary establish a collection and disposal program that would result in the waste capacitors going to chemical waste landfills or high temperature incinerators.

Incinerators used to dispose PCBs must be approved by the appropriate EPA Regional Administrator. The approved incinerators must meet the requirements set out in Annex I of the May 1, 1979 Rule.

Likewise, the chemical waste landfills used for the disposal of PCBs and PCB items must be approved by the appropriate EPA Regional Administrator, which must meet the requirements established in Annex II of the Final Rule.

Further information is available at the EPA Industry Assistance Office: 1-800-424-9065.

SECTION 4: SOLID WASTE

Solid waste planning, regulation, and enforcement in Connecticut are divided among various state, regional and local entities. Every municipality must provide for the safe and sanitary disposal of solid wastes generated within its borders, according to the state law. The Department of Environmental Protection (DEP) regulates the method of waste disposal through permitting and enforcement. Furthermore, the DEP has the responsibility of updating the state's solid waste management plans. Implementation of the solid waste plans and programs are the responsibility of the Connecticut Resources Recovery Authority (CRRA).

Connecticut municipalities have been anticipating the end of their solid waste problems since the passage of the Connecticut Resources Recovery Act in 1973. By the end of 1980, approximately thirty-six (36) disposal areas will have to be closed because they will be filled to capacity or they have serious environmental problems. Landfill siting is one of Connecticut's major solid waste problems. The purpose of this report is to review the progress made by the municipalities, the DEP and the CRRA, in alleviating those problems.

The Council on Environmental Quality (CEQ) believes solid waste to be one of the two dominant environmental quality problems confronting the DEP, and it requires a greater expenditure of staff resources if the problems the towns are facing are to be adequately addressed.

Background

Connecticut citizens produce between three and six pounds of mixed waste per person per day or between 6,000 tons and 10,000 tons of refuse per day. Practically all of this waste is disposed of in the presently existing 172 public and private landfill sites. Over 50 Connecticut towns are disposing of their refuse outside their municipal boundaries. By 1983, there will be over 5.6 million tons of solid waste generated in Connecticut without a known disposal area. At existing DEP permitted landfills, from 1979 to 1983 there may be only an estimated 2.7 million tons of uncommitted capacity available.

The problem is locating suitable landfill sites for the disposal of the increasing quantities of solid waste. These sites must be geologically suitable so that degradation of groundwater supplies are localized and minimized. This is quite evident from the fact that the best potential landfill sites are also well suited to conflicting types of development and must have been precluded by prior development or conflicting needs.

The Solid Waste Management Unit of the DEP has enforcement and management authority over disposal operations within Connecticut. The DEP grants permits to new or expanded sites if certain environmental criteria are met. Also, the DEP endeavors to permit older sites which attain minimum environmental standards. Because many older sites do not meet such standards, only 53% of the mixed waste landfill sites are permitted. Mixed-waste sites in the state are quite prevalent although there has been no increase in the number of sites during the past year. Only bulky waste sites have been increasing in number over the last two years.

In highly populated municipalities, few, if any, available sites remain for land disposal of refuse. Because of local opposition to landfills and lack of suitable land (especially since the land may be used for a more desirable alternative), most neighboring communities are unwilling to accept the solid waste from another municipality. One method for reducing landfill requirements is resource recovery. Resource recovery is the recovery and reuse of waste materials and/or the transformation of energy from refuse. Resource recovery can reduce the quantities of solid waste that would have to be disposed of on the land, although it will not eliminate the need for landfills since residues from resource recovery materials will not be recyclable or recoverable and will have to be landfilled. There are estimates that as much as 10-25% of the waste stream will not be recoverable.

Landfills

Section 22a-1 of the Connecticut General Statutes designates the Department of Environmental Protection's policy of the environment which is to conserve, improve and protect its natural resources and environment and to control air, land and water pollution in order to enhance the health, safety and welfare of the people of the state.

This mandate to preserve and enhance the natural environment has necessitated refocusing solid waste disposal to solid waste management. Planning and regulation have become important activities at the state level, while the disposal of solid waste is the responsibility of the municipalities. Implementation of systems with which this responsibility can be served is becoming more and more a regional and state-wide function.

Land disposal is the chief means of solid waste disposal. Sanitary landfills spreading, competing and covering solid waste with soil as required have replaced the outlawed open face dumps, where refuse was burned daily. Some of these sanitary landfills are on-site transformations of extinct open face dumps, while others are completely new landfills.

Landfills (continued)

The severe landfill capacity shortage, anticipated by the most recent State Solid Waste Management Plan (also recognized as "The G.E. Plan"), written in 1973, has not materialized but this does not mean that some shortage does not exist. The emergency has been postponed by the passage of P.A. 78-67 which prohibits the DEP from closing a landfill unless "a reasonable alternative has been provided." Also, the improvement of management practices at landfills and on-site expansion of landfills have delayed a shortage of capacity. The increased landfill capacity shortage has become intensified because of the absence of comprehensive source separation programs, the increased quantities of solid waste produced in the state, and the recent decline in permit applications (also due to the unwillingness of citizens to accept new landfills).

Local Alternatives

Faced with the decision to search for additional landfill space, municipalities often have few alternatives at hand. The best solution may be the expansion of the existing municipality facility. This produces the least local opposition and also presents the lowest site development cost. A second partial alternative may be the creation of a separate bulky waste site. This choice is sometimes favored because local opposition is often minimal and a permit relatively easy to obtain. Another alternative is the selection of a new mixed waste site which meets environmental standards. This decision is the most expensive operation initially, requiring high acquisition and engineering costs, and may often cause extensive local opposition. A new mixed waste site usually faces a rigorous permit approval process. An important problem with all of the three recognized alternatives is that suitable sites do not exist in most municipalities.

Another alternative, which may be available, is to contract for disposing of wastes with one of the large privately-owned regional landfills. With this choice, long-distance hauling and negotiated tipping fees result in sharply increased costs. One answer which seems to be somewhat prevalent is to continue operation of the existing landfill in non-compliance with DEP regulations and orders. DEP, has been hesitant to order the closing of a landfill because of the increased cost of new solutions to waste disposal, and is also statutorily precluded from ordering the closing of a landfill unless a "reasonable alternative has been provided." (P.A. 78-67). Although non-closure temporarily relieves a municipality's immediate disposal problem, it does not provide a solution and will eventually cause environmental ramifications.

State Planning

The latest State Solid Waste Management Plan, written in 1973, is now considered obsolete It is now noted that landfilling will remain a primary disposal method for a majority of municipalities. This will continue to be so until resource recovery technology proves feasible. A revised program indicates that three large resource recovery facilities would service approximately 60% of the state's waste stream. Revisions of the State Plan have been undertaken by the DEP's Solid Waste Management Unit. An outline of the updated State Plan should be prepared by April 1, 1980. This updated State Plan will consider for inclusion those local and regional plans which have been submitted to date. Also the State Plan will be updated by the DEP biennially to keep abreast with the solid waste situation. The CEQ may be a suitable forum in the development of the public participation components of the State Plan.

Public Act 78-67

The Solid Waste Management Unit (SWMU) of the DEP has been perceived as an unfair and sometimes oppressive enforcer despite inadequate staff. Consequently, the DEP was accused arbitrarily of closing solid waste facilities without providing an alternative to those municipalities affected. This led in 1978, to the General Assembly's enactment of Public Act 78-67 (mentioned earlier) which restricted the DEP's regulatory power.

The first requisite of Public Act 78-67 is that the DEP must find a reasonable alternative for waste disposal for a municipality before closing its landfill operation. Substantial confusion exists between DEP officials and municipal officials concerning the meaning of "a reasonable alternative facility." As a result, the private operator and municipalities are disputing DEP's interpretation of what constitutes a reasonable alternative facility. This requirement of "reasonable alternative" is further complicated by the federal Resource Conservation and Recovery Act (RCRA), which calls for closure of landfills failing to meet certain guidelines. Estimates from the SWMU approximate that 15% of the state's existing landfills will comply with federal standards, and 45% will necessitate minor alterations. The remaining 40% will require issuance of enforcement of closure orders.

Public Act 78-67 allows a municipality to regulate any refuse being brought into its jurisdiction by another city. The Act's further provision barring the siting of a landfill in violation of local zoning laws has resulted in attempts by some communities to exercise their zoning power either to bar landfill siting in their boundaries or to opt for the disposal of solid waste originating from another community.

This type of action by municipalities may exclude the possibility of regional approaches to solid waste management.

The CEQ recommends that Public Act 78-67 be amended to clarify what constitutes a "reasonable alternative facility" and so that a zoning ordinance does not supersede the siting of a necessary landfill.

Siting Policy

The siting policy prepares criteria for a siting of landfills only where they are appropriate and necessary. The permitting of new landfills in critical need areas of the state would permit the DEP to order the closure of capacity-full or polluting landfills. These actions would not endanger a community's capability to dispose of its solid waste, since an alternative would be provided.

The Solid Waste Management Unit has been working with the Natural Resources Center of the DEP in developing a siting policy. According to the Natural Resources Center, Connecticut may be described as an "unconfined acquifer," in other words, ground water can be located in just about every area of the state. This presents the problem that in those areas where the water table level fluctuates considerably, there exists the possibility of leachate polluting the water. Landfills have traditionally been located in areas of sand and gravel deposits because in the winter the ground does not freeze and the ground cover is more easily moved. These areas may also be quite susceptible to fluctuations in ground water level.

The siting policy considers all aspects of land suitability, geological suitability, proximity to groundwater supplies, location of drainage basins, and impact on surface water.

The Natural Resources Center, has laboriously mapped all of the drainage basins and discharge areas in the state. They also had to reexamine all the major acquifers in the state. One of the reasons cited as to why it took approximately a year to achieve these results is the "inconsistencies" found in the U.S.G.S. maps. A benefit derived from the mapping was the identification of all sanitary and industrial landfills, including those which are now extinct.

The maps are in a workable preliminary phase and are being used in the development of ground water quality standards. Since ground water and surface water are related, not separate entities, the entire water quality system has to be revised with a more complete evaluation of the standards. This is not to say that there will be major changes in the system. However, it will now contain ground water criteria in association with surface water

criteria. Water quality standards will be developed probably early in 1980 and are essential to the development of the siting policy.

After the development of the proposed siting policy, which is expected by the early spring of 1980, it will undergo hearings, and adoption before implementation. Following adoption, the DEP will provide an inventory of areas within which suitable landfill sites might be found. This inventory will then be public information. Prospective landfill developers can identify sites from the list and apply for landfill permits which will then necessitate more detailed engineering studies. If the engineering and operational plan meets all pertinent permitting requirements, the appropriate permits will be issued by the DEP following a public hearing.

SECTION 5: EXISTING AND FUTURE LANDFILL SITES

For municipalities depending on older municipal landfills, the cost of solid waste disposal has remained relatively low. As these landfills draw nearer to their life expectancy, other alternative disposal methods will have to be sought.

There is a present need to enable existing environmentally-acceptable but badly operated landfills to operate until a regional facilities network is established. There has been a significant amount of progress made with the upgrading of existing land disposal sites and diversion of bulky wastes and waste reduction by source separation according to the Solid Waste Management Unit(SWMU).

In an effort to extend the life of these sites, the SWMU offers technical assistance to help landfill operators in improving landfill operation techniques and to assist municipalities in developing source separation programs. However, staffing for both programs is very limited.

Although the Department's operator assistance program responds to requests from individual municipalities and/or operators (the program is not based on priorities determined by the Department), it is still one of the most effective means of achieving compliance to DEP regulations. Since the State of Connecticut does not, to date, have an updated State Plan, the operator assistance program has not been aimed at those disposal areas designated for interim or long-term use. The CEQ recommends that when the State Plan is finalized, the forementioned disposal areas obtain operator assistance from the SWMU. One of the difficulties encountered in the operator assistance program is that there are technical regulations but no performance standards to achieve the most efficient landfill operations. Another problem is that with the limited staff of SWMU, there is hardly adequate enforcement of regulations to assure that environmental damage at landfills is minimized. Thus on-site inspections for performance standards to maximize the lifetime of a landfill are almost entirely out of the question. However, the SWMU tries to incorporate "performance standards" into their enforcement proceedings.

Few towns have replied to SWMU's offer to assist in the development of source separation programs; thus, source separation has been least utilized. Comprehensive source separation programs would assist in reducing the waste stream and be especially helpful to those communities with severe landfill shortage problems. The CEQ recommends enhancement of this program to establish source separation and recycling programs in municipalities throughout the state. The Connecticut Resource Recovery Authority (CRRA) has submitted a proposal

which includes the planning, implementation, and operation of two demonstration glass and tin can source separation projects.

If a community is faced with the issue of having no acceptable landfill sites, its alternative is to contract with a regional landfill operator where oosts may be increased due to a wide-ranging negotiated tipping fee, fees for transportation to the regional site and, usually, construction of a local transfer station. This has been the case with more than 50 municipalities to date. It is expected that some of the estimated 92 municipalities needing new sites before 1983 will choose the regional landfill alternative. As this occurs in the future, it is anticipated that regional landfills will become the dominant service providers.

Although regional solutions to solid waste management problems are considered the best, the record of regional participation in Connecticut is not one of progress. The opposition to regionalization in Connecticut, has been felt by several communities during the 1970's, which were unsuccessful in the creation of mutually acceptable landfill sites. Protests and objections generally came from the community in which the landfill site was to be operated. As a result, the concept of regional landfills has been avoided. This failure may be resolved by decisionmaking at a regional level if the "not-in-my-town" opinion of the municipalities can be softened by the wisdom of regional responsibilities and state precedence.

Correction of Landfill Violations

Enforcement has been difficult and orders are outstanding at both private and municipal landfills. When it has been determined that an operator is in violation of a regulation, permit or statute, they are issued a Solid Waste Disposal Area Report which indicates the violations. A Notice of Violation follows, which sets a time limit for compliance and a date for reinspection. Following the issuance of these letters, many municipal and private facilities are brought into compliance, and the need to issue closure orders is avoided. Formal orders are issued from the Commissioner's Office if the violation fails to be corrected upon reinspection.

An operator who receives an enforcement order may take corrective action, pursue judicial relief, or may continue operation in violation of the order. Since 1972, 96 enforcement orders have been issued; however, 37 of the orders remain outstanding and 12 of these need immediate legal action. The remainder are in the process of attaining compliance. The Solid Waste Management Act does not make provisions for judicial enforcement of orders which have not been administratively appealed to the Commissioner by the landfill operator or for the levying of civil fines.

According to the Legislative Program Review and Investigations Committee, the general statutes should be amended to permit the Commissioner to seek injunctive and other judicial relief including the levying of fines whenever a Department Enforcement Order has been violated. This may increase the DEP's enforcement ability if it is accomodated with increased DEP staff. The CEQ also supports such increased powers for the Commissioner.

According the the SWMU's Enforcement Section, a closing order cannot be issued unless the landfill is used to capacity or there is evidence of ground or surface water pollution. Since 1972, thirteen (13) sites have been ordered closed. Seven (7) of these remain operational while other disposal methods are considered. One operator was ordered closed by the court, while the other five operators voluntarily closed their landfills.

Public Act 78-67 prohibits the Commissioner of the Department of Environmental Protection from closing down a landfill unless he provides a reasonable alternative. This statute has severely impeded the enforcement activities of the DEP. As of December 1979, there has not been any significant action taken to amend PA 78-67 to allow the Department to carry out the enforcement process.

The limited staff of SWMU's Enforcement Section will be supplemented during 1980, with the addition of an environmental analyst. This will also relieve the enforcement program's administrator from his analyst's role in one region of the state. The administrator has assumed an analyst's responsibilities when it became necessary.

Reviewing CRRA

In 1973, the Solid Waste Management Services Act mandating resource recovery and the Connecticut Resources Recovery Act came into being, Thus Connecticut was committed to a new waste management future which focused on the recovery of resources from the waste stream.

In Connecticut, waste management initiates without diminishing the volume of refuse. Volume reduction is mainly a responsibility of the municipalities who derive the most benefit. Reduction of solid waste at the "source" is an important means of reducing the refuse which must eventually be disposed of in an environmentally-sound manner. The ultimate phase of resource recovery is dealing with the end-stream which consists of materials which may or may not have any recoverable value.

The limited staff of the CRRA has struggled with numerous problems encountered in the development process. Some problems are:

(1) Technological development of resource recovery has not advanced In 1978, a Congressional committee found that refuse-derived fuel (RDF), the option chosen at the first Bridgeport Resource Recovery Facility, was considered developmental and more costly than originally expected. However, dust RDF is considered an efficient energy-recovery process available. The Bridgeport facility will be the first large-scale commercial operation of dust RDF, but unfortunately the only small-scale demonstration plant had a minor explosion on November 11, 1977. Considering the character of the dust resource recovery process, explosions are likely to arise and are present with resource recovery systems and most industrial dust processes. According to the CRRA and its consulting engineer, precautions have been taken to minimize risk of injury, and modifications have been made to prevent failure to the entire system. (2) Fewer municipalities than formally anticipated are joining the CRRA system due to the inexpensive landfill capacity at their own sites or due to the availability of regional contractors. Also, landfill capacities have proved to be greater than envisioned by the state plan. (3) CRRA is self-supporting and in order to obtain financing, CRRA relies on voluntary commitments of solid waste by communities. Limited funds for resource recovery projects come from the federal government. Responsibility for securing financing for resource recovery reamins with the states, communities, or private enterprises. (4) Delays at the Bridgeport facility have postponed the CRRA operational procedures.

Since 1973, we have discovered that the process of developing an effective resource recovery system is complicated, difficult, and largely without precedent. The CRRA could not have had the foresight to resolve all the problems which were to be encountered in the succeeding years. CRRA has shown itself to be prudent, however, and is now resolving the snares it has encountered.

CRRA's Plans

The current CRRA operating plan calls for the construction of only three large source recovery facilities: Bridgeport, Hartford and New Haven. It is expected that these three facilities will service 60% of the state's solid waste requirements.

The following is CRRA's proposed Plan of Operations for the fiscal year of 1980.

(1) Achieve full commercial operation of the Bridgeport System and service to participating municipalities at acceptable costs.

(2) For the Mid-Connecticut or Hartford System, define scope of project, select site or sites of principal processing facility or facilities, select contractor and complete negotiations with selected contractor.

(3) For the South-Central or New Haven System, complete all steps necessary to the issuance for a Request for Proposal.

(4) Proceed with at least one "smaller" scale waste-to-energy system located away from high density population centers.

(5) Participate in at least one comprehensive demonstration source separation project.

(6) Improve public awareness and participation.

(7) Continue to improve the financial standing of the Authority.

The Authority has also identified sub-goals to accomplish these seven main objectives with an analysis of how each sub-goal shall be obtained. It will be noted that the CRRA does address, in the proposed plan, problems which have arisen in the past.

Concerning the Commercial Operation of the Greater Bridgeport System, the CRRA shall: (1) Achieve the minimum volume commitments of municipalities required to meet those commitments; (2) Establish mechanisms for resolving controversies between municipalities (such as issues as use of transfer stations); (3) Establish clear and acceptable terms and conditions for entry of new municipalities both as permanent and temporary contributors of waste to the Ssystem and (4) Assure that comprehensive environmental monitoring of the System is in place so as to prevent adverse effects upon air, water and land resources.

Commercial Operation of the Bridgeport System, as defined by the Authority and the joint venture, will not occur before July 1, 1980. This is a result of the contractor's failure to address the installation of the glass recovery system and complete conversion of the two United Illuminating boilers. Interim waste disposal service will continue to be provided to the participating municipalities in the event that they require it. Fuel is being produced as waste is processed on a test basis, even though the System is not fully certified.

Due to the fact that large-scale resource recovery facilities in Connecticut will be able to service only 60% of the solid waste stream, the Authority has included in its plans other small scale technology and source separation programs.

CRRA intends to establish secure landfill opportunities for participants in the resource recovery systems. However, the Authority will not establish land disposal sites as an alternative to existing disposal options. By law, responsibility for deposition of refuse remains with the municipalities, while responsibility for regulation of disposal remains with the DEP.

Part 2:

Water-Related Activities

SECTION 1: DREDGING AND DREDGE MATERIAL DISPOSAL

The harbors of Connecticut must be periodically dredged to maintain aviation channels, docking and anchorage areas for vessels engaged in marine commerce, fishing or recreational boating. In addition, new projects requiring dredging are initiated as coastal development increases. Dredging and dredge material disposal are regulated activities: traditionally for economic reasons and the enhancement of commerce; and more recently due to environmental concerns. The impacts of the disposal of these dredged materials are being debated, while alternatives for disposal are investigated.

Many of the inquiries that CEQ receives are about dredging. There is a real concern in the state about the effects of dredging and of dredge materials disposal. Proper handling and disposal will serve as necessary parts to a good coastal program.

The need for a comprehensive management plan for dredging and the disposal of dredged materials has been longstanding. Improvement (new) and maintenance dredging are subject to federal and state permitting. The regulatory morass is further complicated by federal stipulations that dredged materials dumped in open water do not interfere with the commercial fisheries or do not negatively impact water quality. Nevertheless, a considerable portion of the dredged material is presently disposed of in open waters of Long Island Sound, rather than in landfills, containment facilities, or by ocean dumping. Items to be resolved by planning include:

-- the identification and mitigation of the short and long-term environmental impacts of disposal of dredged material;

-- choice of alternatives for disposal; and

-- the clarification of the responsibilities and functions of the regulatory agencies.

To resolve the conflicts, representatives of state environmental agencies in New York and Connecticut, the EPA, the Army Corps of

Engineers (the Corps),the National Marine Fisheries and the U.S. Fish and Wilidlife Service have worked together under the auspices of the New England River Basin Commission (NERBC) to produce the Interim Plan for Disposal of Dredged Material in Long Island Sound. It will provide the basis for the development of a Long-Range Management Plan. These same agency representatives, joined by a member of the Interstate Sanitation Commission, form the Dredging Management Work Group. The Group has presented a proposal for development of a long-range management plan to the Water Resources Council for funding.

The Interim Plan

The Interim Plan constitutes a short-term agreement among the legally responsible federal, state and interstate agencies on a set of policies and operational guidelines to govern the open water disposal alternative of dredged material in Long Island Sound. A preliminary feature of the plan is the procedure organizing the decision-making on an application for a permit to dredge in coastal waters of the Sound. The Plan also institutionalizes the classification of dredge spoils, includes guidelines for open water disposal and stipulates the monitoring practices. In addition, the Plan specifies that the Dredging Management Work Group, in conjunction with ad hoc representation from the public sector and the academic research community, will be utilized to solve specific dredge material disposal problems as they arise.

The Interim Plan is envisioned as one component of the comprehensive plan for the management of dredged material disposal in the Long Island Sound Region. The composite EIS now being prepared by the Corps focuses its study on open water disposal in the Sound. The other two alternatives for disposal under investigation are land disposal and use of containment facilities (i.e. for island building and for shoreline extensions). NERBC's Dredge Management Work Group will be funded to investigate programs in land disposal. This would include beach nourishment, habitat development and various methods of using the dredged material as a resource for construction projects as well as conventional landfilling. The Corps has completed the first phase of their study of containment structures.

Information from ongoing research is channelled back to the Dredging Management Work Group. The assimilative nature of the Interim Plan allows new information to refine judgements made in the decision-making process on permit applications. Data from disposal monitoring and other results of the Corps of Engineers' DAMOS studies is being analyzed. It is intended that scientific investigations be incorporated in the guidelines of the long-range management plan. The Plan must reconcile the tradeoff of environmental impacts against economic costs and social and political acceptability. More information about environmental impacts is sorely needed before this balancing can occur.

To appreciate the magnitude of this task, it is helpful to understand the nature of dredged materials, the scope of the investigations, and the ramifications of the disposal alternatives.

Spoil Content

The sediments of the harbor floors are a natural sink for pollutants. Waste discharged upstream by industrial and municipal waste facilities eventually are carried downstream to the mouths of the rivers entering the Sound. There they may precipitate as they encounter the saline waters of the estuary. Particles, including eroded sediments, settle out as the river velocity is dampened by the stronger currents of the Sound. Fine bottom sediments readily absorb the heavy metals of factory wastes. Non-biodegradable products and toxins can also be chemically and physically "trapped" in the sediments. As a result, metals and other objectionable materials may be found in much higher concentrations in estuaries and harbors than elsewhere in the river.

While the rivers dynamically erode the land mass and carry particles to sea, the littoral currents of the Sound constantly move sandy sediments along the shores of Connecticut. As a result, the harbors and shipping channels become clogged with relatively uncontaminated sand. Hence, dredging is never a one-shot activity. Sooner or later, material builds up and must be removed again. If the sediments did not face contamination from upstream pollutants and harbor chemical and oil spills, they could be disposed of offshore. The only damage from uncontaminated material dumped in open water is increased turbidity due to the dispersion of resuspended particules during sediment removal and bulk disposal in open water. When sediments also contain contaminants, restrictive measures must be taken. It is clear that what is contained in dredge material and how disposal is managed are intimately related.

Short and Long-Term Impact of Open Water Disposal

Research on the short and long-term environmental impacts of open water disposal and their mitigation is crucial. Water turbidity, pH, temperature, ionic balance, nutrient load, bathymetry and native populations are all affected temporarily or permanently by open water dumping. The impacts must be measured biologically, physically and chemically.

Short-term effects can occur during and immediately after dumping. A long-term effect would permanently alter the baseline parameter. Of interest is whether the disposal activity and the dredged materials can alter dramatically the lifecycle of Sound organisms impacted by dredged activities. Also questioned is whether damaging materials found in the spoils will be released and incorporated into the food chain. Others wonder to what extent seasonal upswelling and currents can disturb the disposal plan.

The impacts must be known for mitigation to take place in the form of dredging restrictions. For example, sediment resuspension and disruption of the smooth bottom surface are known to critically affect oyster spate. Therefore, there now exists a moratorium on dredging from June 1 to September 1 in all areas where oyster spawning occurs. Some of the situations have to be looked at on a case-by-case basis.

Some mitigation reflects the tradeoffs of open water dumping. One of the issues debated is whether to allow fishing or lobstering at the disposal sites. The spoil mound often repopulates rather vigorously as creatures are attracted to the introduced nutrients. We may foresake these populations as a food source, if their diet is suspect.

Recently the Army Corps of Engineers has experimented with capping of potentially degrading spoils with cleaner sandy spoils. This mitigatory technique hopefully will prevent pollutants from being released into the water column and keep them from eventual incorporation into the food chain. However, capping techniques must be carefully evaluated over a number of years to ascertain the actual effectiveness of the procedure.

Although many short-term effects of water disposal can be delineated, we are only beginning to collect data to determine long-term effects. That is why spoil sampling and disposal monitoring must continue. Data must be provided from which judgements can be made about the severity of impacts and the effectiveness of consequent mitigatory techniques.

Specific Investigations of Disposal Alternatives

Ongoing research on examination of alternatives, as well as study on short and long-term effects, contributes to the expanding body of knowledge on dredge spoil disposal.

The most widely used alternative, open water disposal in the Sound, is being investigated by the Corps. Their composite EIS will

indicate where in the Sound suitable sites for dredged material disposal occur. Sites will be suggested on the basis of analysis of bottom characteristics, current, capacity and public sentiment. At present, dumping is confined to three of the nineteen historic sites. The Corps, in their CEIS, must determine the efficacy of these sites as well as suggest alternatives to open water disposal sites.

There are economic and social parameters against which the alternatives can be measured for feasibility. Open water disposal has been confined to the Sound due to the tremendous increase in hauling costs to dump in the Atlantic Ocean. Economically, the volume does not warrant the expense of the trip. However, the social cost measured by public opinion and the environmental cost measured by ecological damage has forced the question of whether ocean disposal is more practical. The U.S. Public Health Service, in turn, feels strongly that ocean dumping will severly injur a burgeoning quahog industry. Therefore, the search has focused on mitigating impacts of open water disposal in the Sound.

DAMOS (Disposal Area Monitoring System) of the New England Division Corp of Engineers has been in operation for two to three years. Its purpose is to monitor dredge disposal sites of the New England Division of the Army Corps of Engineers, and to develop improvements in monitoring and advance the Army Corps of Engineer's state of the art in dredge spoil studies. These efforts are invaluable, especially in light of further commitment to open waste disposal of dredged material.

At present, there is no organized search for land disposal sites, the second alternative. Oftentimes, small, non-federal projects produce dredged material which can be placed elsewhere on the littoral or upland landowner's property or in a nearby landfill. Large-scale projects deliver volumes of dredged material which often cannot be accomodated in nearby landfills. The nature of the spoils and the economics of hauling often preclude land disposal. There are alternative land uses for dredged materials: use as construction material, for marsh creation, landfill cover or beach nourishment. However, no agency, state or federal, or local, has taken the lead in investigating and developing these uses. With the exception of local searches for landfill sites for small private enterprises, the real emphasis is being placed on locating and developing disposal sites along the shore and in the Sound.

Landfill siting is already a controversial issue in Connecticut. Land disposal would require properly constructed and managed sites. However, the dollar value of protecting water quality coupled with the possible hauling costs to locations inland from the dredging activity may preclude landfilling attempts. Although

land disposal does not appear promising for the bulk of future dredging activities, it offers a viable alternative for many small individual projects, including those which might involve highly toxic and soluable wastes. Research on land disposal should emphasize innovative techniques other than siting new landfills.

Because the Corps estimates that roughly 50 MYC (million cubic yards) of material will be dredged in the next 50 years, it is proposing a system of containment structures as a third alternative for dredge material disposal. Basically, huge circular rip-rap dikes would be erected in the Sound and spoils pumped into the basin created. These structures would be located along the shore, slightly offshore, or in deeper water of the Sound. Offshore structures would create artificial islands. Onshore containment facilities would extend shorefront land. The designers suggest that these facilities will ultimately provide land for development. The Corps has completed preliminary feasibility studies and is now in the second phase of its study: investigating appropriate sites.

Island building or land extension to be developed by the Corps' containment facilities proposal require thoughtful evaluation. Physically these structures must be able to withstand heavy storms and erosion. Maintenance of the dikes' walls over time is crucial and hazardous pollutants existing in the dredged materials will have to be prevented from release. Otherwise, deposition in the facility cannot be allowed. If the new land created is eventually revegetated their nutrients will be dredge sediment constituents. What will be introduced into the food chain? What shifts in marine and estuarine populations will these large alterations of the Sound floor introduce? Clearly, the environmental questions raised by this disposal technique have yet to be addressed fully.

Whatever the method of dredged material disposal, there are environmental criteria which must be met during and after the process. Water quality must be protected. Shellfish and finfish industries cannot be threatened. During land disposal, groundwater contamination must be avoided. Therefore, spoil leachate and sediment resuspension must be carefully monitored and managed.

Dredging Activity and Ramifications in the Past Year

Perhaps the best way to understand the dredging issue is to examine three case studies from the past year.

Maintenance dredging in Stamford and New Haven Harbors was combined in a single federal project. Sediments in the Stamford

Harbor are considerably contaminated by heavy metals and wastes generated by the metal finishing companies and the sewage treatment plant directly upstream of the federal channel. The New Haven Harbor, on the other hand, was clogged not only with eroded sediments from upstream but also with sandier accumulations from the littoral currents of the Sound. The capping technique for open water disposal, was devised. The dirtier Stamford material was dumped at the Central Long Island Sound open-water dump site, and then capped with the cleaner sediments of New Haven Harbor. The entire operation began in April but was halted on June 15, to be continued after October 1, 1979. This strict scheduling was necessary to minimize interference with the oyster spawning season.

This project set procedural precedents for the new capping technique. Class III sediments (most polluted of three possible dredged material categories) should be capped after open-water disposal. Monitoring during and after disposal must occur. The CEQ requested that monitoring include evaluation of short and long-term effects on benthic organisms as well as document the effective and complete coverage of the degrading Stamford spoils. All of these precautions are elements of the Interim Plan.

A precedent for litigation was also set in a court case triggered by a short dumping incident. One of the company's scows had released Stamford spoils improperly miles from the designated dump site and without a federal inspector on board. The Corps sued the dredging company in federal court for breach of contract, an act of negligence, and violation of the U.S. Clean Water Act. The case has not yet been settled but possible retribution may be a contribution by the defendant to one of the private organizations working to protect the Sound's ecology. An objective of the suit is to discourage future dredging contractors from careless operation of a dredging project.

The Norwalk Harbor is also due for maintenance dredging. One section of the harbor floor contains sediment heavily contaminated with napthalene and nitrobenzene from a chemical spill. The Corps proposes to dig a deep trench in the federal channel in which to deposit the contaminated sediments. These spoils will then be covered with Class I and Class II sediments from the project. The remainder of the cleaner material will be disposed of at the Central Long Island Sound dump site. Under discussion now is the volatility of the contaminating chemicals and the ability of forever isolating them by burial. These questions are bound to be asked again in different harbors with regard to other pollutants.

Five years ago, a dredging project in the Thames River sparked considerable controversy culminating in a court case decision to require the Army Corps of Engineers to write a composite Environmental Impact

Statement on open water disposal in Long Island Sound. The court set a deadline for completion of this CEIS. The dredging itself was completed last year but this year the Navy received permission to commence additional dredging in the channel. The purpose was to deepen the shipping land and turning basin so as to assure safe maneuvering of a larger submarine. The need for foresight in planning for the complex activity of dredging is evident.

Certainly one of the effects of improvement, rather than maintenance dredging is to increase the capacity of a harbor to accomodate larger vessels. This action, in turn, can change the complexion of port activity. Economic benefits are not without environmental costs. A monitoring and data collection mechanism now exists to measure environmental impacts of dredging but we are still groping for a way to balance these against the economic situation in a harbor.

CEQ Recommendations

1. To implement the Interim Plan and to develop the long-range management plan are to be encouraged. However, a time frame for development of the long-range plan should be established. It would be appropriate and functional to coordinate plan development with achievement of Clean Water Act goals by 1983. The plan must be integrated with implementation of federal Coastal Zone Management (CAM) goals and state coastal area management (CAM) goals.

2. There are many innovative alternatives for land disposal of dredged material from small projects. Presently there is no active investigation of land disposal and it is sorely needed. The Connecticut Department of Environmental Protection should play a lead agency role in research and development of land disposal alternatives. Subsequently, this information should be made available to dredging applicants under a program that provides technical assistance and has input in regulatory decisions.

3. Preliminary results show that capping, when controlled and properly monitored, can be an effective technique in physically isolating potentially degrading spoils Therefore:

   (a) As the primary permitting agency and as the manager of the open water disposal sites, the Corps should take on the responsibility of coordinating the timing of various dredging projects that could be linked in a capping procedure.

   (b) Class III material, when it is disposed of in open water, must be capped immediately.

   (c) Monitoring must remain an integral part of the capping process, not only to collect research data but also to insure technical precision.

4. The spoil classification system is an integral part of the Interim Plan. However, there are still ways that it can be refined.

   (a) Sediment type is a major determinant of class. A program to develop harbor sediment mapping is needed to facilitate classification.

   (b) Better methods for assessing hazardous wastes in dredged material must be developed. Criteria for known contaminants must be set. This research project should be a joint effort of the Department of Environmental Protection and the Department of Health.

5. The Council on Environmental Quality emphasizes the necessity for long and short-term evaluation of the effects of open water disposal and encourages continued research under the DAMOS Program to achieve these answers. Connecticut, as a state, should fully support these efforts and apply what pressure it can to encourage continued federal funding.

6. The alternative of containment facilities proposed by the Corps to hold dredged material is a new technique. The Council on Environmental Quality (CEQ) requests that a composite EIS be prepared when such structures are contemplated seriously. Questions to address might include:

   - As the spoils dewater, where will the leachate travel and what will it contain?

   - Aerosols of biologically active pathogens could be created upon spoils, dewatering: How will this problem be addressed?

7. A fee should be levied on the dredging applicant to help defer the cost of administration of the interim plan.

SOURCES

Connecticut General Statutes
DAMOS Annual Report, Naval Underwater Systems Center, Newport, R.I.
Stamford-New Haven Monitoring Report #1-5, ALOE, Naval Underwater Systems Center
Interim Plan for Disposal of Dredged Material in Long Island Sound, NERBC
Phase I Study of Containment Facilities in Long Island Sound, ACOE
Hartford Courant

SECTION 2: GROUNDWATER QUALITY

As environmental problems persist, protection of our resources for future use becomes necessary. The groundwater of Connecticut is one of the most important resources in our state, and it must be protected from hazardous pollution. Recently a number of problems have arisen with public and private supplies. Contamination has occurred because of industrial activity, primarily due to out-dated, past practices of disposal and landfilling.

Given the state's urgent need for new waste disposal sites and the irreplaceable quality of our water supplies, a number of conflicts should be expected in coming years. It is now essential that the waste siting, water supply development and preservation policies be coordinated.

Surface water pollution has been the main thrust of the Department of Environmental Protection under the Water Pollution Control Act. A document, "Connecticut Water Quality Standards and Classifications," has been established and periodically updated to meet federal requirements. This document serves as an administrative tool to establish water quality policy and to guide permit reviewers in their efforts to regular surface water discharge.

An attempt is now being made to incorporate the state's groundwater into the existing system. This new system will be based on discharges to surface water and groundwater. The groundwater classifications and procedures would be similar to make the transfer to the system easy. The groundwater would be classified in drainage basins or portions of drainage basins.

When the quality of the groundwater is known, then policy decisions about land use can be better made. These standards would impact on many state agency actions.

The more information gathered, the better the decisions eventually made. In many instances, we have three levels of decision-making. To be comprehensive all three - (1) statewide policy level; (2) detailed investigation; and (3) site design and permit level, must be addressed. In the past, watercourses and impoundments were involved; now drainage area delineations will be added.

In preparing to put this classification in practice, some basis had to be established. The criteria that were looked at include:

(1) Existing and planned water supply reservoirs.
(2) Existing public water supply wells.
(3) Favorable groundwater conditions for wells.

(4) General existing land use.
(5) Location of waste discharges to surface water.
(6) Location of waste discharge to ground.
(7) Hydrogeologic conditions must be acceptable for waste disposal to ground.

As the system is refined, Connecticut is fortunate that a great deal of work has been done to delineate the drainage basins areas. The Natural Resources Center of the DEP has taken the lead in getting these established. Their efforts have provided Connecticut with a drainage basin delineation that far exceeds the limits of other states in our region.

Once in place, this system will provide additional protection for our citizens' health and water supplies. The new system must provide the comprehensive planning that will be needed to appropriately site any future toxic materials facilities. Public acceptance will be necessary for many of those decisions. A properly established system of this type will increase the possibility of these facilities being located in the most acceptable location.

In order to aid in the success of such a system, the CEQ would recommend:

(1) A comprehensive surface water and groundwater monitoring network be maintained. This will provide the data needed to establish the system. The monitoring will also be useful to assess the impacts of decisions and serve as an indication of future actions.

SECTION 3: FILLING AND ERECTION OF STRUCTURES IN TIDAL WETLANDS BY LITTORAL LANDOWNERS

In the past year, there has been citizen concern that the filling below mean high water in wetlands, mudflats and marshes of our state by littoral landowners has infringed upon the lands held in the public trust. Filling is a permitted activity subject to federal and state statutory regulations. It is the interpretation of these regulations at the state and federal level that is disputed. The fact that new developable property is created implies that the action is a real estate venture. Some would argue that to allow filling in these areas is a violation of land held in the public trust because it is a private gain at the public expense. There is a conflict between the desire of the public to preserve and conserve the coastline by limiting the permits for filling and the common law right of wharfage.

Statutory Authority in Tidal Wetlands

At the federal level, wetlands are regulated by the Army Corps of Engineers under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act of 1977. Wetlands are defined by the Corps as lands which are wet at least part of the year so that they are able to support vegetation tolerant of saturated soil conditions. The Corps has purposely chosen to rely on this generalistic definition rather than explicit mapping so that their jurisdiction can be determined on a case-by-case basis. One advantage of this subjective approach is that wetland boundaries chosen will reflect the variability of their edge. Wetlands are a hydrogeologic phenomena influenced by changes in surrounding land use over time. Another advantage of the Corps approach is that it often does not become involved in small projects unless public sentiment produces an active pressure.

Once the Corps has determined its area of jurisdiction, it is required to review the proposed filling in light of the policies of the two forementioned acts. These policies are meant to insure the water quality and navigability of the nation's watercourses by protecting wetland function. In practice, the Corps waits for the local and state decisions, before issuing their opinion. Those citizens expecting the Corps to provide an impartial forum for decision-making often find that the Corps' decision merely reflects the most influential state or local attitude.

Within Connecticut, wetlands are classified as inland or tidal. Tidal wetlands are defined by plant type and mapped. The maps are periodically updated. The Water Resources Unit of the Department of Environmental Protection regulates activities in tidal wetlands under Section 25-30. The statutes were enacted to protect wetlands from despoliation and destruction.

On January 1, 1980, Connecticut's Coastal Management Act took effect. Under the program, all agencies which regulate activities in the coastal area must follow the goals and policies of the act in decision-making. Included are local planning and zoning boards and inland wetland agencies. A key policy is that the filling of tidal wetlands and nearshore, offshore and intertidal waters for the purpose of creating new land from what was otherwise undevelopable is not allowed unless adverse environmental impacts on coastal resources are minimal. Once the Connecticut Coastal Area Management Program is approved by the U.S. Department of Commerce, federal consistency will require the Army Corps of Engineers to abide by this policy and all the others of CAM legislation when the Corps decides on a permit.

Littoral Ownership and Lands in the Public Trust

The state policy to restrict filling of wetlands or submerged lands below mean high water is reflective of two considerations. First, it is these estuarine wetlands that play a major role in flood water storage. This function serves a beneficial service for all persons and property located downstream in the flood plain. Secondly, Connecticut holds the land below mean high water in public trust. Therefore, all citizens should have access to the water from land below mean hightide. Any permitted structure or permitted filling activity beyond the mean high water line should not aggravate flooding nor prevent public access to the water. Any obstruction is considered a public nuisance and the Commissioner can order that it be removed.

A related and complex issue is land ownership. As one person's shoreline erodes, another's property grows through accretion. Often bulkheads are erected to protect property from erosion. If a bulkhead is placed beyond the mean high water line, if may infringe upon public land. Properties with very old deeds may show property lines which do not coincide with the shoreline. However, activity beyond the mean high water line as well as in tidal wetlands must be regulated because its environmental influence is felt by private and public interests beyond the property line.

Environmental Regulations In Practice

Enforcement is a major problem with the legislation protecting tidal wetlands and regulating structures and filling in tidal, coastal or navigable waters. A flagrant and frequent violation of the coastal water regulations occurs when a structure is erected beyond mean high water and an after-the-fact permit is requested. In this way, "new" property is created. The Commissioner of the Department of Environmental Protection has the power to order the structure or fill to be removed and the area restored. There is simply not sufficient staff to insure

that "illegal" activity will not occur. The burden of responsibility for watchdogging the tidal coastal and navigable waters for "illegal" structures and filling rests with the private citizen who is aggrieved by these public nuisance infractions. This responsibility is accepted actively in some sections of the state but sufficient staff would make enforcement more effective.

Often it is not protection of wetlands and watercourses and their beneficial functions (flood storage, sediment trapping, erosion control, and water purification) with which people are concerned. Rather, it is appropriate and desirable land use at a particular site that influences their attitude toward wetland filling. The regulatory agency is often unable to make an objective decision with regard to wetland function without other factors in these highly subjective and controversial situations. Certain individual projects are deemed to have minimal adverse effects. Filling in wetlands does occur, and it does so incrementally. As a result, the collective effect is detrimental to the public protection wetlands provide and to the land held in public trust. Regulatory statutes have not addressed this problem. With the implementation of the CAM Program this may be remedied.

Compensation for the Loss of an Environmental Function

The Legislature has found that there is an environmental value in the maintenance of wetlands. Yet there is no compensation mechanism for their loss. When filling occurs in a tidal wetland, the property value is affected by the increase in developable land. The hydrogeologic regime on and off-site is altered. If the landowner were assessed for the newly created land and for the ecological damage caused, perhaps Connecticut's loss of wetland would not occur so rapidly. If the littoral landowners were required to compensate for the offsite erosion, loss of flood storage and habitat destruction caused by bulkhead construction, perhaps infringements on the public trust land beyond mean high tide would no longer plague the enforcement of the legislation. If a reparation fund were established, fees collected could be used for flood control, water quality protection, marsh creation and enforcement along the watercourse in the watershed.

A compensation system is not without precedent. Both Maryland and Massachusetts have programs which levy charges on those creating new land beyond mean high water. In Massachusetts, the riparian landowner can also agree to replace in kind the habitat or shoreline function that was lost by development. The rationale for the programs is simply that those gaining private benefit from utilization of public trust lands must compensate the public for that use.

Wetland, Waters and Watercourse Legislation

Consistency in decision-making for wetlands and shoreline filling must be established statewide. The coastal area management legislation provides for consistent decisions within the coastal boundary. All decisions under site plan review in the coastal area must agree with the goals and policies of the Act. In addition, federal regulatory agencies must also comply with Connecticut's goals and policies once the CAM Program is approved by the U.S. Department of Commerce. The intent of Connecticut's wetlands and watercourses legislation must be reaffirmed, and good enforcement strengthened.

Recommendations

(1) A watershed protection fund should be established to contribute to the cost of flood control, sedimentation and erosion control, maintenance of water quality, marsh creation and the enforcement of wetland and watercourse environmental regulations. The fund shall consist of monies collected from these sources:

    (a) Compensation for permitted filling in tidal wetlands;
    (b) Rental fees for littoral landowner utilization of public trust lands below mean high waterline.

2. The Commissioner of the Department of Environmental Protection should promulgate regulations for the tidal wetlands and coastal waters legislation that are consistent with the goals and policies of CAM legislation. The regulations should include stipulations for payment to a watershed protection fund.

SECTION 4: STREAM ENCROACHMENT LINES AND THEIR FUNCTION IN FLOOD CONTROL

The Commissioner of the Department of Environmental Protection established encroachment lines along waterways and flood-prone areas considered for flood control. Any obstruction or encroachment riverward of the encroachment line must be permitted. Theoretically, the encroachment lines are at the edges of the floodway of the 100-year storm. The floodway carries the high velocity flow of the river. Therefore, any structure of fill could be flooded and would impede flood flow if not properly designed. Impeded flow would result in backwater flooding or ponding in the floodplain upstream. If the structure or fill subsequently washed away, it would release the pond water to cause flooding downstream. It is obvious that careful attention must be given to any program that regulates activity in the floodway as well as those regulating the floodplain.

This year, while investigating a citizen complaint, the Council on Environmental Quality was made aware of a discrepancy in the encroachment line line designation on the Quinnipiac River. Apparently, the river has changed its course since the official mapping in 1967. Therefore, when the encroachment lines were transferred to the recent (1978) federal HUD flood insurance maps, the lines actually crossed through the middle of the Quinnipiac River as mapped.

The section under question is downstream of the site of the controversial North Haven Mall proposal. Reestablishing the encroachment lines in this particular reach of the river will not affect the permitting for the proposed North Haven Mall. However, if the lines are not resurveyed, theoretically, the developer could fill areas that should be protected by this program. Of course such an attempt may fall under other programs. This obstruction could cause backwater flooding of the proposed mall site in a 100-year storm. This worst case situation illustrates the importance of accurate stream encroachment lines.

The Council on Environmental Quality has asked the Commissioner of the Department of Environmental Protection to investigate the situation. His preliminary response indicates that the lines will be resurveyed. A public hearing must also be held to establish the up-to-date lines.

The entire incident points up a weakness in the encroachment line legislation. The original legislation dates from 1963. It does not provide for updating the encroachment lines once they are established. Rivers change their course over time, but unfortunately there is no legal incentive to insure that encroachment lines reflect

these changes. The Department of Environmental Protection is required to survey state-owned forest lands every five years and to update tidal wetlands maps every two years. In contrast, the Department of Environmental Protection policy for encroachment lines is to re-examine them when pending riparian development warrants it. It may be wise to require encroachment lines updates on a regular basis. Otherwise riprarian developers, who rely on the maps, may discover that their project is legally permissible yet environmentally threatening.

Recommendations

1. The stream encroachment lines legislation must be strengthened. A method to insure timely and accurate encroachment line designation on watercourses and waterways in flood prone areas must be incorporated.

Part 3:

Air Quality

SECTION 1: THE STATE IMPLEMENTATION PLAN AND AIR QUALITY

In the past year, the energies and feverish activity of citizen participants and DEP Air Compliance personnel have been focused on the completion of the State Implementation Plan(SIP) for achieving air quality standards. This major document was produced to meet the requirements of the 1977 Clean Air Act Amendments. Any state without an approved program by July 1, 1979 would be subject to federal economic sanctions. Connecticut managed to file its SIP only days before the July deadline for approval. The EPA and the state are now working together to groom the plan for approval. Although the state is roughly six months behind the Congressional timetable, the EPA has honored Connecticut's good faith efforts and will not press for cutbacks in sewer, housing and highway funds.

Background Information

The State Implementation Plan integrates all the programs utilized in Connecticut to protect our air resources and to help solve our air pollution problems. Several of the programs are backed by legislation and give regulatory authority to the Commissioner of DEP. Programs are designed to reduce the amounts of 6 major air pollutants to levels below the national ambient air quality standards (NAAQS). These pollutants are ozone (O_3), total suspended particulates (TSP), sulfur oxides (SO_x), nitrogen oxides (NO_x), carbon monoxide (CO) and lead (Pb). Hydrocarbons (HC) also have guidelines but no standards at present. A good discussion of their health effects are found in the 1978 Annual Report of the Council on Environmental Quality.

Pollutant concentrations or levels higher than the primary standard can be injurious to human health. Pollutant levels higher than the secondary standard can be damaging to property and materials. The strategies of the SIP are designed to bring pollutant levels in Connecticut within attainment of the national ambient air quality standards (NAAQS). The federal standards must by met by 1982 with an extension possible to 1987 in the State of Connecticut. The plan must also provide for the prevention of significant deterioration

of the good air quality in the regions of Connecticut where pollutant concentrations are below the damage threshold of the primary and secondary standards.

Connecticut is divided into four regions on a geographic basis for the purpose of monitoring air quality. The levels of major pollutants measured in these areas reflect the climatological influence on pollutants generated within and without the region. Achieving and maintaining good air quality (ie. levels within the National Ambient Air Quality Standards - (NAAQS) requires a masterful balance of pollution control techniques. Ideally an area should be in attainment of the NAAQS for all of the six pollutant standards. Unfortunately, every region of Connecticut is a non-attainment area for one or more of the pollutants (i.e. levels exceed the standards). SIP strategies are targeted, region by region, at each pollutant, to reduce excessive pollution in some areas and maintain the cleaner air environment in others.

Although pollutants enter Connecticut's air from natural sources (ie. forest fires) and out-of-state transport (air masses blown in from the heavily industrialized New York-New Jersey tidewater areas), it is control of the man-made in-state sources that the SIP measure emphasizes. For stationary sources improved pollution control technology and restrictions on fuel types are the two dominant strategies for pollutant level reduction. In addition to making continued efforts to clean-up from mobile sources, the plan focuses on tail pipe emissions controls, right-turn on-red, and transportation patterns as the key areas of concern. Gas and diesel motor vehicles continue to be the major source of air pollution in the State of Connecticut.

SIP Strategies to Insure Good Air Quality

The Commissioner of the Department of Environmental Protection has the authority to regulate the sources of major pollutants. A new stationary source such as a factory or a heating plant must secure a construction permit and an operating permit. The construction permit is granted only after a DEP analysis and determination that the facility will have the proper pollution control equipment or design to meet the air quality standards. DEP can attach conditions to the permit. Once the source has complied with all the construction permit conditions, the operating permit is issued. It may also be conditioned. In addition, stationary sources are subject to regulations and requirements with regards to their emission levels.

As the DEP Citizen's Bulletin once notes, the "peripatetic pollutants" of the "ubiquitous automobile" are not as easily controlled. An operating gas or diesel power vehicle emits all of the seven major pollutants. Obviously the only ways to combat the pollution derived from mobile sources are controls of the tailpipe and management of

transportation patterns. For the former, Connecticut has chosen to rely on federal regulation of the automotive industry to reduce pollution through better vehicle design in the coming years and an inspection/maintenance program Transportation strategies are discussed primarily under the hydrocarbon control strategies. If hydrocarbon emissions from motorized vehicles can be significantly reduced, hydrocarbon pollution levels will drop dramatically.

DEP also reasoned that highway growth should be controlled in order to reduce traffic-caused pollution. Therefore, Connecticut has an indirect source program. The permitting process remains highly controversial.

Ozone Control Strategies

Ozone is the primary component and therefore the indicator of smog. It is formed when hydrocarbons react with nitrogen oxides in the presence of sunlight. We cannot control the sunny days. However, it is easy to understand that we can reduce irritating smog concentrations by controlling hydrocarbon and nitrogen oxide emissions. To do this, Connecticut has a set a hydrocarbon reduction goal which, if met, should cause ozone levels to drop to the federal standard by 1982.

Hydrocarbon Control Strategies

The federal motor vehicle emission control program cannot, by itself, sufficiently reduce hydrocarbon levels in Connecticut. Hence the SIP contains twelve strategies, three aimed at mobile sources and nine covering stationary sources, to reduce hydrocarbon emissions. Because of the nature of these techniques, carbon monoxide, lead, nitrogen oxide and particulate emissions will also be curtailed.

The most ambitious, and the most controversial, strategy is the transportation plan review. Hydrocarbon levels are derived from modelled emission levels generated from projections of vehicle miles traveled in a given year. Therefore, planning a transportation network is a key element in managing hydrocarbon emissions. Each year the Urban Regional Transportation Boards or the Transportation Endorsement Boards and DOT will submit transportation plans to DEP. The Commissioner will then determine whether or not they are in conformance with the SIP.

Basically the plans should prioritize and schedule road construction and improvement to meet the timed pollutant reductions specified in the SIP. Ride-sharing incentive programs, mass transit improvement and non-structural improvements in traffic flow are the other elements of the plans. The two other mobile source controls for HC are the legislated automobile inspection and maintenance program and the right-turn-on-red program.

Regulations have been suggested to reduce hydrocarbon vapors released during gasoline transfer, curing of cutback asphalt and solvent metal cleaning. Finally, the coating of cans, coils, fabric, paper, wire and furniture will be controlled by regulations aimed at limiting hydrocarbon emissions from these processes.

Carbon Monoxide Control Strategies

Carbon monoxide is a localized, sometimes lethal pollutant. Automobile exhaust is the predominant source. Traffic congestion results in carbon monoxide build-up or "CO hot spots". The federal New Motor Vehicle Emission Control Program and Inspection/Maintenance will reduce CO from non-idling vehicles only. Therefore, strategies to prevent traffic bottlenecks play the primary role in reducing carbon monoxide levels. These include better signilization, right-turn-on-red and structural alterations which improve traffic flow.

Total Suspended Particulates and Control Strategies

Particulates in the air are elusive pollutants not easily controlled. Traditionally they are products of fuel combustion, solid waste disposal and industrial processes. Pollution control devices and strategies of the original SIP have successfully reduced emissions from these sources. However, the secondary NAAQS for TSP has not been attained in Connecticut because strategies to control other, non-traditional sources do not exist yet. Non-traditional sources include resuspension of particulate matter which has accumulated on street surfaces, fugitive emissions from construction and demolition operations, motor emissions and tire wear.

Existing strategies to control particulates include imposition of reasonable available control technology (RACT) on types of industry which emit high quantities of particulates. These strategies affect traditional sources primarily. But in Connecticut, especially in urban areas, vehicle-related emissions are the predominate source of particulates. Control strategies for these non-traditional sources are now being developed.

Other Criteria Pollutants

Lead - In January 1978, the EPA issue a NAAQS for lead. Lead can be an insidious health hazard (see Lead levels in children of this report.) Emissions from vehicles powered by leaded have been a major source of lead in the atmosphere. In addition, lead smelters and the manufacturing of leaded glazes, glases, plastics, paint pigments and batteries are sources of airborne lead. Fortunately, as leaded gasolines are phased out, pollutant levels in Connecticut should drop below the standards for lead. Future SIP revisions will focus more specifically on lead.

NO_x - Nitrogen oxide levels are within attainment of the NAAQS in Connecticut. Therefore there are no specific control strategies for NO_x in the SIP. However, NO_x does react with HC to form O_3 and it is produced by the same source of hydrocarbons, motorized vehicles. Obviously those strategies which reduce hydrocarbons from mobile source emissions will also reduce nitrogen oxide levels.

SO_x - Sulfur oxides are produced by, among other things, fossil fuel combustion. SO_x and NO_x combine with moisture in the atmosphere to form acids, hence "acid rain". This problem plagues the New England states and eastern Canada. As a pollution control several states have set requirements or limits on the % sulfur contained in fuels burned in each state. In Connecticut, only .5% (or less) sulfur-containing fuel can be burned. By setting this requirements, Connecticut has been able to keep the SO_x pollutant levels within attainment of the NAAQS for SO_x.

Asbestos - Airborne asbestos fiber is another hazardous pollutant. Resource limitations and time restraints prevented the refinement of the draft control program so that no asbestos-control measures are contained in the SIP. A future SIP revision will certainly contain an airborne asbestos fiber control program.

SECTION 2: INDIRECT SOURCE PROGRAM

In 1979, the Indirect Source Regulations were amended. There was much debate before the changes were enacted. The CEQ has been very active in this area and has taken an active part in the formulation of the State Implementation Plan (SIP).

An indirect source of air pollution is one which does not itself emit pollutants, but attracts auto traffic which may cause a violation of the federal air quality standards. Indirect sources include highways, shopping centers, parking garages, industrial parks, or any other "trip generator" which would increase auto emissions in a given area.

The federal government, the EPA, as well as the states, have been prodded to enact effective air pollution control strategies. In 1973, the Natural Resources Defense Council sued the U.S. EPA, charging that the EPA was not requiring states to adequately address transportation-related pollutants, such as hydrocarbons, carbon monoxide, nitrogen oxides, and particulates. As a result, the U.S. Court of Appeals for the District of Columbia ordered EPA to require states to use methods to supplement federal auto emission standards.

Connecticut's Indirect Source Permit Program (ISP) went into effect in August of 1974, and originally regulated highways, airports, and off-street parking facilities (garages, shopping centers, etc.). Because indirect sources can be large generators of auto traffic, regulating indirect sources can help attain the federal clean air standards. Although the inclusion of indirect source permit programs in state air quality implementation programs is <u>not</u> required by EPA, some have been lead to believe that EPA would be more likely to approve a state implementation plan which includes an indirect source permit program.

At its inception the ISP regulated hydrocarbon and carbon monoxide emissions only. By 1977, the program reduced the types of facilities involved, highways and airports, causing some concern for the impact of large-scale development. The changes that have taken place this year are part of the DEP's program and will have to be reviewed by the EPA.

The Council on Environmental Quality was an active part of the process that the state used to review its air quality plans. In October of 1978, Route 72 in Plainville was exempted from ISP permit requirements, after some uncertainty as to whether the road fit the definition of a permittable indirect source. The Council requested a Declaratory Ruling from Commissioner Pac on exactly what kind of projects required ISP permits. This question was answered when the ISP amendments were adopted this year.

From November 1978 to February 1979, the Council participated in the State Implementation Revision Plan Advisory Committee (SIPRAC). At that time, CEQ received a federal grant to study the development of the Plan, and to work on public participation. In January of this year, CEQ testimony on the Draft State Implementation Plan included the following comments:

(a) The Indirect Source Program could be an excellent air pollution control strategy, if expanded, clarified, and enforced.

(b) The Declaratory Ruling requested of the DEP Commissioner by CEQ is crucial to the revision of the Implementation Plan.

(c) The ISP should be expanded to include regulation of all transportation-related pollutants; lead, particulates, and nitrogen oxides in addition to hydrocarbons and carbon monoxide.

(d) The Indirect Source Permit Program should be expanded to include the regulation of all indirect sources, not just highways and airports,because the regulation of <u>all</u> indirect sources will help to preserve a needed margin of growth in the state.

The changes to the Indirect Source Program have changed the procedure for the permit and also cleared up some of the questions that were raised in the past. The changes include:

(a) Additional pollutants are being added to the application process. The following will be included:

- lead (NEW);
- particulates (NEW);
- nitrogen oxides (NEW);
- hydrocarbons (and ozone);
- carbon monoxide.

(b) DEP review of projects will begin much earlier in the planning of the proposed development:

(1) Stage 1 Review for hydrocarbons and ozone, when the project is initially proposed;

(2) Stage 2 Review for lead, particulates, nitrogen oxides, and carbon monoxide (on a macroscale analysis), when a corridor has been chosen after the analysis of alternatives;

(3) Stage 3 Review for carbon monoxide "hot spots" after the project design is well underway.

(c) The regulation of indirect sources will be tied in with Regional Transportation Plans:

(1) Regional and state-wide transportation plans must be deemed "in conformance with" the State Implementation Plan by the DEP. If contested, the Office of Planning and Management would mediate.

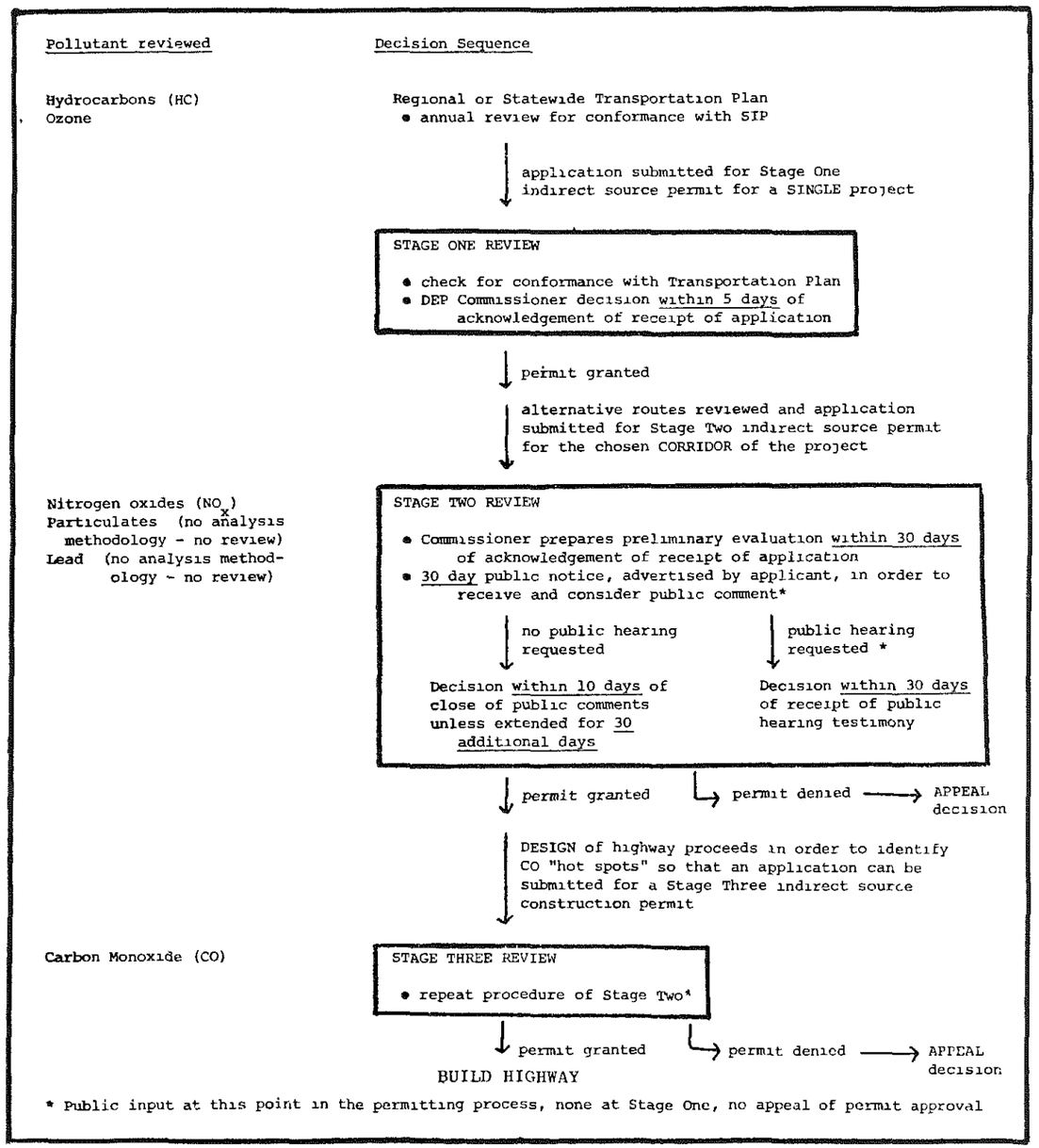
(2) Applications for Indirect Source Permits must be for projects included in a conforming regional or state transportation plan.

(d) No new types of indirect sources are being added. The proposed change would drop airports from the program, and include only highway work.

(e) The confusion over which highways require permits is eliminated. The program currently applies to highways with an hourly traffic of 1,000 vehicles in any one direction. The current proposal would have the program include: all new state highways in a new right-of-way; all new interchanges; and is at least one mile in length. All of these indirect sources would require an ISP permit; if and only if they are in the state highway system.

The Indirect Source Program now has a three-stage review process (See Chart). When the application is first received (Stage 1), it is checked to see if it is part of a regional or state Transportation Plan which has been deemed to be in conformance with the State Implementation Plan. The actual hydrocarbon and ozone review takes place when the Transportation Plan is reviewed by DEP (on an annual basis). Therefore, when the individual application is received, no hydrocarbon and ozone review takes place. If the proposed project is part of an approved Transportation Plan, it will be given a Stage One permit application within 5 days of its receipt.

FLOW CHART OF PROPOSED REVIEW OF INDIRECT SOURCES FOR THE PURPOSE OF GRANTING PERMITS



* Public input at this point in the permitting process, none at Stage One, no appeal of permit approval

In Stage Two, the impact of the highway on nitrogen oxide levels at the edge of the corridor will be estimated. When the DEP has determined that acceptable methodologies are available for projecting particulate and lead impacts, these pollutants will also be examined at Stage Two. A Stage Two permit will be granted if it is found that the proposed highway will not result in the violation of the standards for those pollutants studied. The Stage Two review will not include pollutants examined in Stage One, and will utilize information included in the project EIS, if one has been prepared.

After a Stage Two permit has been granted, micro-scale modeling of carbon monoxide impacts will be done. This is the appropriate level for carbon monoxide review, because this pollutant tends to react with the environment and diffuse at intermediate distances. The greatest impacts on carbon monoxide are at short distances. At this late stage in the project development, minor design changes can be made to avoid violating the carbon monoxide standard.

At both the Stage Two and Three levels, public hearings may be held at the request of the public, and at the discretion of the Commissioner. A permit denial may be appealed; permit approvals may no longer be appealed.

As earlier stated, the new regulations redefine highways and answer one of CEQ's concerns. This should make the public more aware of the need for such a permit. Another benefit is that the review of Indirect Sources is beginning much earlier in the design stages of a project, thus eliminating the possibility of a project's denial after gross sums of money have already been spent.

The CEQ would recommend that a review be given to see if large-scale attractors such as shopping malls and industrial complexes be made part of the Indirect Sources Program. The state must be prepared to deal with the pollutants that these developments cause.

A meaningful method of public participation must be found that can guarantee the acceptability of the regional Transportation Plans. The consistency of the Transportation Plan should also be made known, so that they will influence development instead of development determining highway projects.

SECTION 3: ISSUES IN GOOD AIR QUALITY

Transportation

While stationary sources of air pollutants have therefore been addressed by strategies to control emissions, emphasis by the State of Connecticut has shifted to the area of mobile sources, an indirect source program and transportation control plan review.

These components of the State's Implementation Plan for Air Quality Control have become topics of intense debate and serious disagreement between citizen interests. Some groups and individuals have scrutinized these programs for their effectiveness in dealing with motor vehicle pollution and for their impact on transportation planning. Others have opposed such air pollution controls as overly restrictive and economically harmful to the State with little demonstrable connection to protecting public health.

Advocates of strict air pollution control measures argue that SIP control measures are not strong enough to prevent massive road building which they argue generates more automobile usage and more motor vehicle-related pollutants.

Proponents of less stringent air control measures argue that road building does not generate air pollution, nor generate more automobile pollution. In fact, improving the road network reduces vehicle congestion, increases traffic flow, takes autos off of clogged local streets in urban areas and thereby reduces air pollution.

Because of the complex nature of mobile source pollution, these two programs are tightly interwoven in the SIP. The following brief explanation illustrates how transportation land use patterns and air quality have become enmeshed issues.

Granting of Stage One permits in the indirect source program depends entirely upon data from the regional transportation plan review. Part of the annual plan preparation requires the Connecticut Department of Transportation to estimate the amount of traffic that will occur on the existing and proposed roads in the region. From these estimates, hydrocarbon and ozone pollution levels are predicted. If these levels are within the limits set by the compliance schedule, the Commissioner of the Department of Environmental Protection can approve the plan. A road contained in an approved transportation plan is automatically granted a permit.

Critics argue that the compliance determination and the plan approval occur too readily. Because the compliance schedule for achieving the NAAQS standards is based on the "full-build" alternative, all planned highways could be built because the projected pollution

compliance schedule should have been developed with the "no-build" alternative as a base. They point out that under the present system, road-building is encouraged, and claim this stimulates motor vehicle travel to the exclusion of other alternatives.

Since there is an absolute maximum allowable hydrocarbon pollution level above which further development (pollution potential) will exceed air quality control standards, a dilemma is presented in terms of balancing the necessity to prevent air quality from exceeding established standards and in allowing for necessary economic growth and development. Control of mobile sources of pollution will ideally allow more indirect and direct sources to be constructed within the limits of the air quality standards. It becomes obvious that to allow for and ensure greater economic growth, some trade-offs will be required. A fair and equitable weighing of environmental and economic costs and benefits of potential development projects is therefore essential.

It is imperative that continued attention must be given to the transportation plan review. A proper balance of transportation alternatives to meet the compliance schedule for attaining air quality standards must be achieved at the annual review stage. This includes a foresighted consideration of growth in all sectors of the economy. The unpredictable changes in fuel costs and the growing common awareness of energy conservation will be factors affecting the transportation plan package. New emphasis on ride-sharing, mass transit and restored rail commuter lines should be considered and carefully analyzed for impact on reducing air pollution and conserving energy. An intensified effort to bring about technological changes to improve motorized vehicle engine efficiency and continued effort to reduce auto emissions through emission control devices can be a major contributor to improving air quality. What remains to be seen is how well Connecticut citizens and the Connecticut Department of Transportation can work together to develop transportation plans that consider pollution-curbing measures which accomodate growth.

Lead and Waste Oil

In the wake of fuel shortages, citizens have responded well, cutting back on consumption, developing energy efficient habits and turning to alternative energy sources to supplement their main power sources. One of these alternatives is potentially dangerous: burning unprocessed waste oil. Waste oil includes used motor oil and contains considerable amounts of lead. If it is not reprocessed to remove lead and other contaminants, this lead is released into the atmosphere when oil is burned.

Presently in Connecticut, there are very few companies licensed to collect waste oil for reprocessing. Reprocessing

is an expensive procedure and marginally profitable. However, it is technology that warrants increased emphasis. Reprocessed waste oil is an alternative fuel source. Already some greenhouses use the treated oil as a heating fuel during the winter.

Waste oil has been classified as a hazardous substance. Normally its disposal is under the jurisdiction of the Hazardous Waste Unit of the Department of Environmental Protection. Unfortunately, many homeowners have supplemented their heating oil with untreated waste oil. Unwittingly, they have released lead and other pollutants into the atmosphere. Control of these airborne pollutants is under the jurisdiction of the Air Compliance Unit.

Clearly waste oil must be regulated from both perspectives. Air pollution regulations should include a stiff penalty for burning of waste oil that has not been reprocessed to remove lead. Both Air Compliance and Hazardous Waste and the Energy Division of the Office of Policy and Management should collaborate to estimate the magnitude and fate of the unaccounted for waste oil. In addition, an informative and educational campaign must be initiated to make citizens aware of the problem.

As the energy crunch continues, the unchecked waste oil problem will increase. It would be unfortunate if state government avoided the issue because it crossed administrative jurisdictional boundaries. The Council on Environmental Quality recommends that the Governor name an existing agency as the lead investigator to work collaboratively with the involved parties and agencies to develop a comprehensive waste oil recycling program for Connecticut.

Part 4:

Legislative Changes in Environmental Laws

The environmental legislation of 1979 shows the diversity of activities and interests in the field. Although many topics were touched upon this past session, two areas - hazardous wastes and energy - are beginning to gain momentum.

The first hazardous materials incidents have been in the news and to some extent have had an effect on every citizen of the state. This topic has been called the "problem of the '80's," and rightly so. The interest, needs, and funding levels show this to be one which will receive more attention in the future.

Hazardous materials is in an organizational and response stage. While the federal government is establishing criteria, the state must respond to the immediate problems that arise. During this time, the state must also be developing its waste permit procedures.

Inventories of potential sites which may pose problems because of past disposal practices are being compiled on the federal, state and local level. All the studies being done will provide input when the decisions regarding future waste sites are reached.

Another issue which is closely related to the environment is energy. This year there were many bills that were energy-related. Concern with the scarcity of oil and the hazards of nuclear power has prompted an explosion of interest in this field.

The energy question is being addressed on all governmental levels. Many energy bills were submitted during the last legislative session. The concerns became so great that a special legislative session to deal with energy matters was convened in October. One fear of environmentalists is that much of the protective legislation that has already been passed may be overridden in our efforts to support our economy with adequate energy supplies. This proved to be the case as various proposals for the Energy Mobilization Board were debated in Congress.

Originally, the I/M Bill was to be effective January 1, 1980. The 1979 Session amended the 1978 Act to change the effective date to January 1, 1981. This along with other amendments was vetoed by Governor Grasso but overridden in a Special Session.

The following is a summary of that amendment.

(I/M) PA-79-238, HB 7521, AN ACT CONCERNING MOTOR VEHICLE EMISSIONS
Amends the 1978 Inspection and Maintenance Act (I/M) to:

(1) require that the Motor Vehicle Department (MVD) contract with a private firm to perform the inspections;

(2) allow 30 days (instead of 10) for vehicle owners to have the vehicle repaired should it fail the emissions test;

(3) require the MVD to adopt regulations to implement the I/M Program by November 1, 1979;

(4) exempt from inspections new vehicles prior to initial registration in accordance with the Clean Air Act Amendments;

(5) change the commencement dates for mandatory inspections and compliance with emissions standards from January 1981 to January 1982;

(6) delete the provision allowing firms with approved inspection lanes to inspect the firm's employees' vehicles free of charge;

(7) raise the ceiling on the inspection fee from $5 to $10;

(8) delete the provision for a Motor Vehicle Emissions Inspection Fund;

(9) require the DEP to establish minimum exhaust emissions standards by November 1, 1979, and to periodically review the standards and make necessary revisions;

(10) clarifies that repair requirements cannot exceed $70 unless the vehicle's air pollution control device has been "r moved, dismantled or is inoperative."

The prevailing feeling for the support this amendment had was that the program would not be complete by its original effective date (January 1, 1980). Many people felt that a mandatory program should be implemented as smoothly as possible. If the I/M Program was run poorly, it would have a negative effect on future legislation. The Transportation Committee of the Legislature and the Department of Motor Vehicles are still meeting to set this program up. More time delays and price increases are being mentioned. The soliciting of bids from private contractors still left questions about the state's ability to meet its requirements.

The "bottle bill" which passed the Legislature in 1978 is in effect in 1980. The Department of Environmental Protection has the responsibility for promulgating the regulations. Some confusion did arise concerning the ability to implement the "bottle bill" but this was because people were considering it the same as the "litter bill." The "litter bill" or the "Litter Control and Recycling Act" is dependant upon income from a litter control assessment. This means that until funds are collected, the programs will not be operational. It is planned to be fully effective in 1981. The legislation covering beverage container deposits is not dependance on any assessments and can go into effect on its planned date.

After the regulations have been promulgated, they go to the Legislature's Regulations Review Committee. The Committee adopted the regulations in November. The Attorney General's Office had rejected the regulations adopted in October for exceeding their legislative authority.

The beverage container deposit regulations outline the refund, labeling and redemption of containers. They basically follow the outline of their enabling legislation and will need some refinement through future legislation.

Coastal Area Management

The 1979 legislative session also passed the Coastal Area Management Act. Receiving broad support from coastal and inland environmental interests this act was also supported by business interests seeking consistency in regulation.

The effective date of the act is January 1, 1980, which also marks the beginning of the "Year of the Coast." Coastal Area Management is addressed further in Part 5 of this report.

SOME PROMINENT LEGISLATION PASSED IN 1979:

WILDLIFE

PA 79-445, AN ACT CONCERNING DEER DAMAGE PERMITS

Establishes a new system for issuing permits to hunt deer which are causing crop damage.

PA 79-491, AN ACT CONCERNING DEER MANAGEMENT

Allows the Commissioner of Environmental Protection greater flexibility in managing the deer resources of Connecticut.

PARKS AND RECREATION

SA 79-92, AN ACT CONCERNING THE ESTABLISHMENT OF THE WEST ROCK CONSERVATION AREA SUPPLEMENT

Authorizes the DEP to purchase additional land to expand the boundaries of West Rock Ridge State Park and requires DEP to prepare a plan of development for the park. A DEP study of security problems at the park is also mandated, to be submitted to the General Assembly by February 1, 1980.

SA 79-100, AN ACT CONCERNING THE USE OF EMERGENCY VEHICLES AT BLUFF POINT COASTAL RESERVE, GROTON

Requires the DEP to maintain a road within the reserve adequate to provide emergency vehicles with access to the reserve.

RADIATION CONTROL - NUCLEAR POWER

PA 79-527, AN ACT CONCERNING NUCLEAR WASTE TRANSPORTATION

The Commissioner of Transportation must notify the Commissioner of Public Safety of permits issued that allow radioactive material or waste to be transported into or through the state. The PSC will ensure compliance with permit regulations through vehicle inspection along its scheduled route. Municipalities cannot restrict the passage of radioactive material or waste shipments that have been approved by the Transportation Commissioner.

PA 79-487, AN ACT CONCERNING THE CONSTRUCTION OF NUCLEAR POWER FACILITIES

Prohibits the construction of a fifth nuclear power facility in Connecticut until the federal government identifies and approved demonstrable technology or means for the disposal of high level nuclear waste.

PA 79-488, AN ACT CONCERNING THE BURIAL OF NUCLEAR RADIOACTIVE WASTE

Requires legislative approval for burial of nuclear radioactive waste (excluding low level medical radioactive waste and low level radioactive waste from educational research) in Connecticut.

COASTAL MANAGEMENT/WATER RESOURCES

PA 79-170, AN ACT CONCERNING TIDAL WETLAND PROCEDURES

Requires the DEP to promulgate regulations applying to tidal wetlands statutes (Sections 22a-28 through 22a-35 of the statutes)

PA 79-201, AN ACT CONCERNING PERMITS FOR THE ERECTION OF STRUCTURES AND THE PLACEMENT OF FILL

Requires the DEP to consider "management of coastal resources" in decisions on permit applications for the erection of structures and placement of fill.

PA 79-285, AN ACT CONCERNING HEARING REQUIREMENTS FOR INLAND WETLAND PERMITS

Requires inland wetland agencies to publish two public hearing notices for permit applications at specified intervals of time. Also allows the agency to charge a fee to defray publication costs.

SA 79-94, AN ACT CONCERNING AN AQUIFER ASSESSMENT IN SOUTHWESTERN CONNECTICUT

SA 79-65, AN ACT CONCERNING A STUDY OF DREDGED MATERIAL DISPOSAL AREAS FOR THE CONNECTICUT RIVER NAVIGATION PROJECT BELOW HARTFORD

Appropriates $40,000 to the DEP for the study of disposal areas for material dredged from the Connecticut River by the Army Corps of Engineers.

SA 79-77, AN ACT ESTABLISHING THE CONNECTICUT RIVER ASSEMBLY

Authorizes the establishment of the Connecticut River Asembly to be composed of the Governor or her designee and representatives of each town bordering the Connecticut River from Middletown to Massachusetts, the Capitol Region Council of Governments and the Mid-State RPA. The Assembly will analyze local, state and federal controls affecting the river and adjacent lands, designate "a

conservation zone" and develop land use standards for that zone, recommend acquisition of land or easement within the zone, and report its findings and recommendations to the General Assembly by January 1, 1981.

HAZARDOUS MATERIALS MANAGEMENT

PA 79-605, AN ACT CONCERNING CONTAMINATION, POLLUTION OR EMERGENCY RESULTING FROM THE DISPOSAL, DISCHARGE, SPILLAGE, LOSS, SEEPAGE OR FILTRATION OF OIL, PETROLEUM, CHEMICAL LIQUIDS OR SOLID, LIQUID OR GASEOUS PRODUCTS OF HAZARDOUS WASTES

This act fulfills Executive Order No. 24 and gives the DEP authority to enforce the Hazardous Waste Management Section of the Federal Resource Conservation and Recovery Act of 1976. The act expands the DEP's spill response obligations to include a wider range of hazardous materials, creates a $200,000 revolving fund for use by the DEP in response to spill incidents, and requires that an inventory of hazardous waste disposal sites be compiled and submitted to the General Assembly's Environment Committee by January 15, 1981.

MISCELLANEOUS

PA 79-499, AN ACT EXPANDING THE AGRICULTURAL LANDS PRESERVATION PILOT PROGRAM

Increase the bond authorization for the Agricultural Lands Preservation Program from $5.05 million to $7.05 million.

BILLS THAT FAILED

Of the bills that were not passed in the 1979 Legislative Session, three should be mentioned here. The DEP is planning on submitting them again in the 1980 Session.

The first concerns commercial fishing amendments. This bill would expand licensing and reporting requirements of commercial fishermen. This would help the DEP to adequately maintain fisheries and comply with the federal Fishery Conservation and Management Act.

The second would bring Connecticut statutes into compliance with federal regulation in regard to boating safety.

Solid Waste Management was the topic of the third bill. This bill was not passed in order to allow the Environment Committee to conduct a study. The bill touches on a variety of subjects including enforcement, permits, grants, bonds and RCRA changes.

ENERGY

Much of the energy legislation related to environmental matters. Interest in the success of each are watched by many of the same groups. Some of the following pieces of legislation, although under the heading of energy, deal directly with environmental concerns In the future, both agencies will have to work even more in unison to protect various resources.

PA 79-225, AN ACT CONCERNING THE USE OF SEWAGE AS AN ALTERNATIVE ENERGY SOURCE

Requires the local pollution control authorities to consider the feasibility of using sewage as an energy source in planning new or additional sewage systems.

PA 79-462, AN ACT CONCERNING THE USE OF RENEWABLE ENERGY IN NEW STATE BUILDINGS AND ESTABLISHING A PROGRAM TO MAXIMIZE EFFICIENCY OF ENERGY USE IN STATE-OWNED AND LEASED BUILDINGS

PA 79-496, AN ACT TO ESTABLISH AND ATTAIN ENERGY PERFORMANCE GOALS IN STATE BUILDINGS

PA 79-572, AN ACT CONCERNING ENERGY EMERGENCY PREPAREDNESS

SA 79-102, AN ACT AMENDING THE CHARTER OF THE METROPOLITAN DISTRICT CONCERNING HYDROELECTRIC DAMS

Authorizes the MDC to contract with the CRRA for resource recovery operations and to construct, repair and maintain hydroelectric dams.

PA 79-544, AN ACT CONCERNING THE ESTABLISHMENT OF A COMMUTER PROGRAM

SA 79-66, AN ACT CONCERNING A FEASIBILITY STUDY OF HYDROELECTRIC ENERGY SOURCES

1980 Legislative Proposals

Along with the submission of the three bills that failed which were previously mentioned, the DEP has some other pieces of legislation to be considered. One of the most important is a proposal concerning Water Quality Monitoring. This act would develop and maintain: (1) a statewide ambient water quality network to evaluate the existing condition of the state's surface waters and to project long-term trends in surface water quality; and (2) a statewide ambient groundwater quality monitoring program to analyze groundwater quality and assess the extent and severity of groundwater pollution.

This program is a prerequisite to the state receiving federal program grants for the state water pollution control effort. Beyond this is the need to establish assurances to the public of the state's knowledge of its waters. Many of the hazardous materials incidents concern water. If the state ever hopes to establish any new waste disposal facilities, the public has to know that this crucial part of our environment is being watched.

The importance of groundwater monitoring can be seen in many of our communities. Wells in different parts of the state have been found to be contaminated. Public and private water supplies alike fall under this category. The causes have also been varied. Landfills, industry and chemical process facilities have all been blamed. The benefits that will accrue from this legislation will make future efforts easier and alert the state to potential problems.

Part 5:

Coastal Area Management

The Coastal Area Management Program (CAM), which operates within the Office of the Commissioner of the Department of Environmental Protection, was officially implemented by the passage of the Coastal Management Act and a number of amendments, (P.A. 78-152 as amended by P.A. 79-535), and C.G.S. Section 22a-90 to Section 22a-96. This coastal resource planning program is funded under the Federal Coastal Zone Management Act (CZMA) of 1972 and is the result of over five years of careful analysis and political compromise. The CEQ applauds the Governor and the Legislature for its passage and congratulates the CAM staff and concerned citizens who worked so diligently for its enactment.

The need for the CAM Program is evident after a brief review of Connecticut's coastal development and resources. For instance, four out of ten Connecticut residents reside in one of our thirty-six (36) communities. Less than half of Connecticut's tidal wetlands remain undisturbed, and ninety (90) of two hundred fifty (250) miles of coast is highly developed for industrial, commercial and residential purposes. (Between 1968 and 1974, more than two-thirds (2/3) of all structures built along Connecticut's coast were built without a permit, and most tidal wetlands filling was conducted without a permit or in violation of permit conditions (See CAM Planning Report #21). Furthermore, a full twenty-eight percent (28%) of our coastline has been developed to its maximum density and use.

Our coast is an "asset of great present and potential value" for its natural, economic, recreational, cultural and aesthetic resources. Connecticut's tidal wetlands are a resource of critical value in their natural state because they provide important spawning and feeding areas for fish, shellfish and birds; they serve as natural storm buffers and flood zones; and they remove water-borne impurities caused by pollution. Another direct benefit of the new CAM Program will be the increased coordination of various local, state and federal permitting programs which have often unnecessarily delayed the legitimate use and development of certain coastal areas. Thus, those interested in development and a prosperous coastal economy supported the increased coordination offered by the CAM Program.

As stated in Section 6 of the Coastal Area Management Act:

> (t)he key to improved public management of Connecticut's coastal area is coordination at all levels of government and consideration by municipalities of the impact of development on both coastal resources and the future water-dependent development opportunities... (emphasis added).

This statement is central to the overall rationale of the Federal Coastal Zone Management Act (CZMA) which encourages coastal states to develop management programs which will protect and rationally plan the development of our nation's coastal areas. The Connecticut CAM Program will create a partnership among local, state and federal agencies in order to avoid conflicts and overlapping efforts.

At the time of the passage of the CAM Program, which became effective on January 1, 1980, a proposal for coastal development required twelve to fifteen permits. As the CAM guidelines and use priorities are implemented, the permit process will become streamlined and provide a better mechanism for rationally balancing the need for continued coastal development and the need to protect areas of particular concern.

CAM Program Development

Coastal area management has proven to be a difficult political issue in a number of states that have voluntarily attempted to comply with the CZMA, and Connecticut is no exception. Our CAM Program was formulated with strong citizen input, solicited at hundreds of meetings around the state. Regional workshops explained the program's policies, and local officials were given ample opportunity to express their concerns or advice. As a result, the CAM Program which finally emerged, represented a comprehensive, grass-roots effort to discuss our coastal resources and the management policies that should govern them.

After the initial Coastal Management Grant in 1975, an Advisory Board was created to continue the development of the program and to make legislative proposals for future consideration. The Advisory Board consisted of a number of agency members and/or commissioners, as well as citizen members from a number of coastal towns.

The CAM Advisory Board proposed legislation which would distribute coastal regulation authority between the state and local governments. Local governments have the option of developing

their own coastal management plan which must be in compliance with the state program. In addition, municipal planning and zoning is mandated to conduct coastal site plan reviews in accordance with state statutes in the Coastal Management Act. Existing local jurisdiction is thus preserved. This will leave the state regulating tidal wetlands and structures and dredging in tidal waters, while leaving the local governments responsible for administering planning and zoning regulations. Secondly, the CAM Program was designed to operate without the creation of new regulatory or bureaucractic programs. Thirdly, the Advisory Board sought a uniform level of coastal resource protection which would apply to the towns and state alike. The CAM Program creates well-defined limits of discretion and provides strict accountability for coastal resource decisions.

The Advisory Board managed to develop a program which would provide a balancing of coastal resource protection and economic and social benefits. And, finally, the Advisory Board was mindful of the need to comply with the CZMA so that Connecticut would be eligible to receive federal funding.

The CEQ believes that Connecticut's CAM Program is wholly consistent with the federal scheme. The following summary of the enacted law should demonstrate that our program will effectively coordinate existing zoning and permitting programs, while balancing resource protection and development.

An Act Concerning Coastal Management, Summary (P.A. 79-535)

The act establishes a statewide Coastal Area Management (CAM) Program to coordinate local and state efforts to consider the impacts of private and public development on the shoreline and its resources. It requires the state's thirty-six (36) coastal municipalities to conduct site plan review evaluating the effects which proposed development will have within the coastal area. Criteria, goals and policies to be considered in making these reviews, including such things as water dependence, the national interest and adverse impacts on coastal resources are specified in the bill.

In addition, municipalities will be allowed to voluntarily develop municipal coastal programs governing activities, uses and buildings within the coastal zone. Once such a program is initiated, the act requires the revision of that town's plan of development and related land use regulations to conform to the policies and goals of the act.

Initially, the DEP will grant each applying municipality at least $2,500 to begin to implement the provisions of the bill. After that, at least 30 percent of the federal coastal management funds received annually by the state must go to the municipalities for site plan reviews and up to an additional 20 percent (20%) must go, as a first priority, to towns developing municipal coastal programs.

The Department of Environmental Protection is required to:

(1) Provide technical assistance and research to municipalities;

(2) Map the coastal zone and complete an inventory of coastal resources;

(3) Assist the municipalities in enforcement activities; and

(4) Prepare a yearly report to the Governor and the General Assembly on the implementation of the program.

The act makes municipalities parties to the DEP permit proceedings affecting the coast and also makes DEP a party to municipal site plan reviews. All major state plans affecting the coastal zone, except the Plan of Conservation and Development, and all regulatory programs under the jurisdiction of the Commissioner of DEP must be revised, if necessary, to be consistent with the goals and policies of the bill.

The bill appropriates $250,000 to carry out its purposes and expires under a "sunset" provision on July 1, 1983, at which time the Legislature will review the effectiveness of the program (See Office of Legislative Research Summary at 5 CLT No. 53, p.3 (1980)).

CAM Implementation and Federal Approval

Connecticut's Coastal Management Act will provide the coordination and enforcement outlined in the Federal CZMA and should be consistent with the requirements of Section 307 of that act. While the CAM Program input will allow local planning boards to implement our coastal policies, thereby preserving local autonomy, it will be possible for the DEP to enforce its guidelines in a number of ways.

The CAM staff has meticulously developed Connecticut's management program and has completed the establishment of management criteria and priorities, exact definitions of coastal zone boundaries and planning goals. A resource inventory has been completed recently and resource maps will be made available to local planning authorities by early February. Furthermore, permissible uses have been identified

for many coastal areas, as have areas of particular concern. Priority guidelines have been drafted for a variety of resources and will provide for the orderly development of specific areas throughout the coastal zone.

In short, Connecticut's CAM Program represents a model effort to comply with the national policy of the CZMA. Since the federal act does not require a specific organization structure to implement its policies, our CAM Program must now demonstrate that Connecticut has developed an organized and unified management structure which will be able to implement our coastal policies. Our coastal program is unique and does, in fact, represent Connecticut's solutions to some of its problems.

Critics of the CAM Program's enforcement capabilities should curb their commentary until the program's effectiveness has actually been tested. They should also be mindful of the years of tortuous compromise and planning that has evolved in the present CAM Program. he CEQ feels confident that the self-enforcing sections of the CAM legislation will provide adequate enforcement methods for the DEP and the people of Connecticut.

First of all, Section 12 of the CAM Program provides a number of specific criteria to be used by local authorities in reviewing coastal site plans. This section also requires the local board to state in writing its findings and reasons for its action, as well as why the action is consistent with the act's policies. This written record must also include a statement that all reasonable conditions or permit modifications have been made to mitigate adverse impacts.

Secondly, Section 19 will allow the DEP to participate as a party-of-right in any coastal site plan hearing and to appeal to court such municipal decisions as many be deemed necessary by the Commissioner of the DEP to assure the continuing and effective administration of the Act. These provisions are supplemented by possible actions under the Connecticut Environmental Policy Act which can be brought by citizens and state entities for the protection of Connecticut's natural resources.

The pre-draft of Connecticut's Coastal Management Plan, CAM's official program document, has been approved by the Federal Office of Coastal Zone Management. A final version has been submitted for final approval. Public hearings and workshops have been held throughout the state to explain the final proposal. Federal approval is expected in the early fall of 1980.

Conclusion

The CZMA is one of the most comprehensive pieces of federal land-use legislation ever passed by Congress and its mandate for a "balancing" coastal-use program is difficult to fulfill. The CEQ has actively participated in the CAM debate and feels that the present CAM Program is something our citizens should be proud to support. Federal approval seems likely, provided that critics of the program will have enough consideration for Connecticut's citizens and coastal zones to refrain from premature skepticism and unwarranted legal threats.

The CAM staff has provided an excellent public information service and should be credited for its fine efforts to date.

Recommendations

The CEQ would recommend that the 1983 "sunset" date be extended by the General Assembly to 1985 in order to coincide with the federal review date. This would allow the CAM Program an adequate time-frame for effective implementation and would allow for simultaneous review by the state and the federal governments.

Part 6:

Connecticut Environmental Policy Act: Amendments

The Connecticut Environmental Policy Act (CEPA), originally enacted in 1973, requires the preparation of environmental impact evaluations for all state agency-sponsored or funded projects which may have a significant effect on the environment. The law remained inactive until 1977, when the Legislature passed amendments to guide implementation. In November of 1978, DEP promulgated regulations under the Act. They clarify the procedure for evaluating the environmental impact of a project and for preparation of the environmental impact documents.

The Amendments charged the 22 major state agencies, or those agency sections with project-funding authority, with preparation of Environmental Classification Documents. In these documents, agencies were to classify their typical actions into three categories. The listing would provide an agreed upon guide for preparation of environmental impact documents. Class I actions will always result in significant environmental impact and require a written EIE, Connecticut's Environmental Impact Evaluation. Class II actions are indeterminate; their impact depends on scope and land site in each individual case. A preliminary environmental assessment of Class II projects at the time of their proposal will determine whether an EIE or a Finding of No Signficant Impact (FNS) is required. An FNS is prepared when slight environmental alterations are anticipated from a planned action. Class III projects are those for which a federal impact document would be prepared.

Table 1 shows the sequencing of the Environmental Classification Documents and the Environmental Assessment Process.

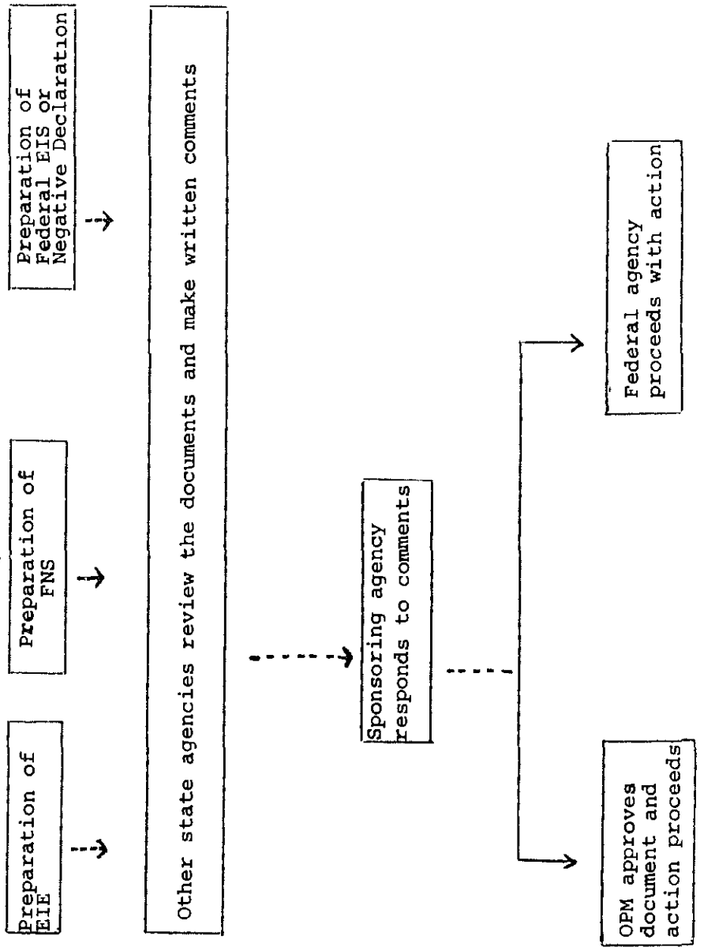
All of these statements discuss environmental, social, economic and energy impacts of proposed land development. Only the federal EIS and the state EIE discuss alternatives. Regulations specify that an EIE:

> "shall be prepared early enough so that it can practically serve as an important contribution to the decision-making process and it shall not be used to rationalize or justify decisions already made."

TABLE 1

ENVIRONMENTAL ASSESSMENT PROCESS

Before deciding to undertake or approve an action, the sponsoring state agency assesses the environmental impact of the action and prepares an appropriate document under CEPA or NEPA.



ENVIRONMENTAL CLASSIFICATION DOCUMENTS

State Agency determines the Environmental Significance of typical projects:

Class I: requires EIE

Class II: indeterminate action EIE or FNS required.

Class III: requires document under NEPA (Federal EIS, etc.)

Agency publishes Environmental Classification Document

OPM coordinates review by other state agencies

OPM approves ECD

Agency revises ECD every two years

99

Procedure for following the Regulations of the Connecticut Environmental Policy Act (CEPA)
Connecticut General Statutes Section 22a-1-1 to Sections 22a-1a-12

An EIE must also list all the necessary licenses, permits, certifications or other approvals required to implement the action. Mitigation measures should also be discussed. Material must be presented so that it may be understood by the general public. It is clear that this document is intended to provide information for discussion of project appropriateness. Preparation of an EIE does not imply that a project has been approved or will be funded.

When an agency prepared a Finding of No Significant Impact, it must provide

> "information in reasonable detail to support its belief that the environmental impact which would insure from the proposed action would not be significant."

An FNS should include a description of the proposed action, the existing environment of the area and the probably primary and secondary effects on the environment that the proposed action would have. Documents are not lengthy but do include a discussion of air, water and noise quality and mitigation measures. If no dissenting comments are filed during the comment period, OPM approves the finding. It is possible that OPM may require an EIE to be prepared if, after discussion with the sponsoring and the reviewing agencies, the FNS does not adequately answer concerns raised during review.

Implementation of CEPA Amendments

As of December 1979 not even half of the agencies have filed Environmental Classification Documents. The Office of Policy and Management approves these documents after they have been circulated to other agencies for review. However, only a handful of agencies have approved Environmental Classification Documents. The slow response from agencies is indicative of their lack of expertise in judging the potential environmental impact of their actions. Although agencies are adept at determining social need and economic cost, only the Office of Policy and Management, the Department of Transportation and the Department of Environmental Protection have a regular environmental staff. Therefore, it is not surprising that meeting CEPA requirements has not been a priority concern.

Despite confusion over Environmental Classification Documents, several environmental assessment documents have been produced. In the past year, the Council on Environmental Quality has reviewad one EIE, 8 Findings of No Significant Impact, numerous federal EIS's and 3 Negative Declarationsof Environmental Impact. Agencies have cooperated well under the aegis of the Office of Policy and Management in meeting for roundtable discussion of an assessment's adequacy. In one successful meeting, it was agreed that a complete EIE should be prepared for the Bradley Airport Master Plan rather than separate

Findings of No Significant Impact for each phase. Consequently, segmentation was avoided. One advantage of the CEPA process has been to promote interagency discussion of planned actions.

The benefit of open interagency discussion of projects is that the lead agency can judge the general acceptability of a proposed action early in development. For actions that are indeterminate (Class II), preliminary meetings are sometimes held to discuss whether an EIE or an FNS is required. After the document has been prepared, agencies review it for adequacy and often meet again to discuss the proposed project. It should be stressed that the CEPA process rarely stops a project from moving forward unless there are also objections for other than environmental reasons. Rather, CEPA's purpose is to insure that projects which are funded, are environmentally sound while being constructed and when built.

Issues Raised by CEPA Regulations

Perhaps the most debated issues are adequacy and timing of a CEPA statement. According to the Act, the environmental assessment process is designed to take place before approval decisions for permits and project funding occur. Oftentimes the mitigation measures and alternatives cannot be described until the project is well into the site planning phase of development. If there are dissenting comments on the CEPA statement, or it is shown to be inadequate, the Office of Policy and Management can withhold its approval. No permits can be granted and a finding is not released. The CEPA review can be an effective stalling mechanism, when opposition to a project is raised. Ironically, once a CEPA statement is approved, there is no guarantee that mitigation measures or responses to reviewers' concerns will be incorporated in the final design.

For those agencies without an in-house environmental or design staff, obtaining approval of CEPA statement has become unnecessarily complicated. Traditionally, projects for these agencies have been carried out by Public Works. However, the Department of Administrative Services, which houses Public Works, has not prepared an Environmental Classification Document. Public Works' projects still require CEPA statements which are normally contracted to outside consultants. The CEPA regulations require outside consultants to issue a disclaimer that they have no financial interest in the outcome of the project. Yet agencies are often presented with "inadequate" environmental assessments. Projects are arrested in development until the insufficiencies are eliminated. Since a project cannot receive any permits until it receives CEPA statement approval, there is a real incentive to encourage agencies to actively participate in the CEPA process.

The methodology of handling the projects that need CEPA statements is still not that clear. The Public Works Unit of the Department of Administrative Services was applying for a wetlands permit on a project that came under the Connecticut Environmental Policy Act. Nowhere in the process was there a mechanism to alert the Inland Wetlands staff of the need for a CEPA statement. It would help all review and permit agencies if some sort of procedural checklist could be established.

The whole CEPA process still has to become a familiar activity to the agencies involved. This is mainly a matter of time and experience. Extra diligence by all parties involved will be needed until the CEPA process gets smoothed out.

The extreme tardiness of Environmental Classification Documents (ECD) is deplorable, but the situation can be remedied. Technical assistance given to delinquent agencies from the environmental staffs of the Department of Environmental Protection and the Office of Policy and Management would result in a faster completion of the documents. An Environmental Classification Document is very straightforward. Without it, an agency must make a determination of the direct and indirect environmental effects of every single action it undertakes The Environmental Classification Document serves the predetermination function and saves time in the long run. Because the Bureau of Public Works plays a major role in project development for many agencies, the Department of Administrative Services may be named the sponsoring agency. If so, it is critical that the Department prepare an ECD.

State agency compliance with the regulations of the 1977 CEPA amendments may be used as a measure of the effectiveness of the Act. At this stage, for the majority of agencies there appears to be a hesitance to meet the regulatory requirements. This reluctance is most likely due to the fact that many agencies do not have the staff or expertise to anticipate the potential adverse changes to air, water and aesthetic quality that a project may generate. For those agencies that have complied, roundtable discussion during the review period has been educational. The real measure of environmental protection achieved will involve evaluating the projects reviewed under CEPA during and after construction. Ideally their plan and design should incorporate the mitigating elements developed in the CEPA process.

Another test of the Act's success is the degree to which it is able to involve the citizens in the review process. The regulations state that an agency shall insure adequate public notice of the availability of EIE's for review. It also must circulate FNS's to the town clerk of municipalities where the action will take place and make copies available to interested parties. Through CEPA, the citizen has the opportunity to contribute his or her opinion to the decision-making process on state actions that affect the local environment. To date, this voice has not been heard. It may be an outreach effort will have to be made.

Although the regulations encourage the early preparation of EIS's, there is no stipulation that CEPA statement approval is necessary for an agency to undertake a proposed action. The Act merely states that an agency must take into consideration all public and agency comment when making its final decision on a proposed project. The Council sees this as a weakness in the Act, and further suspects that many actions are being proposed and implemented without a CEPA review. Therefore, the regulations must be strengthened. Full project funding should be withheld until a CEPA statement is written. Furthermore, no state permits should be granted until the statement is approved. Finally, although the CEPA statement provides good information to be incorporated into project planning and design, the Act has no enforcing power to insure that favored alternatives and mitigating measures will be adopted. Environmental protection and good environmental quality depends ultimately on the strength of the regulatory mechanism of other state programs. The only real enforcement of alternatives might occur if CEPA has a stronger action-forcing section.

The question of CEPA applicability to private development, is still unclear. Insofar as large developments invariably impact air and water quality, as well as stress existing infrastructure or cause new construction of water, sewer and transportation facilities that are part state-funded, the Council suggests that major private development be required to comply with CEPA regulations. Developers should be asked to give proof that they will be able to mitigate or compensate for adverse environmental impacts when constructing their projects.

The CEQ would also recommend that the CEPA regulations be evaluated in the definition of "actions" and "sponsoring agency."

Recommendations for Determining a Sponsoring Agency

(1) Determine if, in issuing a permit, an agency has exercised judgement or discretion as to the propriety of that action.

(2) Determine, if this is the case, whether the agency must conduct an environmental impact evaluation.

(3) Determine to what degree this exercise of judgement or discretion must be to qualify as state involvement in a project.

(4) If there is state involvement, determine whether the state agency or mall developer is the sponsoring agency.

(5) Require an environmental impact evaluation from the sponsoring agency when state property is under consideration.

Part 7:

Urban Issues

One of the trends that has been developing is that of movement back to the cities. This is coupled with the realization that preservation of our cities will reduce the growth pressures on undeveloped areas. While our cities still face critical problems in environmental and economic areas, many cities are attempting to revitalize and attract new business.

The federal government has been using the cooperation of state and local governments with private groups to carry out a program for cities. A basis of any program for cities is to revitalize its economic ability. A strengthened economy will show that pollution control can be achieved without a decrease in economic productivity. Also with economic problems curbed, the environmental concerns can be given more consideration.

If we had handled the urban problems, we would not have suffered the associated problem of urban sprawls. Economically, we must raise more money for municipal services and highway maintenance. Our water supplies are being overtaxed and threatened because of rapid development. Air, water, natural buffer zones have all felt the impact of this sprawl. In more recent times, the energy shortage is encouraging centralization and better transit systems.

Problems that illustrate the urban and environment relation are beginning to appear on the Council's agenda. We can anticipate many diverse groups joining together to solve this common problem.

SECTION 1: MALLS

During the past year, frustrated citizens have contacted the Council on Environmental Quality in their efforts to oppose mall development in their towns. All sincerely believed that the quality of their environment was threatened by this proposed major change in land use. Not only would their life style be altered, but the air and water quality of their neighborhoods would be substantially changed by mall development. Dubbed "supermalls", each project ranged from 60 to 250 acres in size. All of the citizens concerned were loosely or formerly organized in an opposition group. Brookfield,

Manchester-South Windsor, Rocky Hill (two malls), Branford, North Haven, Cromwell, Danbury, Orange, Waterford, New London and Farmington had at one time proposals for malls in their communities.

Citizens asked the Council for information about applicable environmental regulations and expected impacts. The Council determined the effects of "any development that would create a large impermeable surface" and "generate a substantial traffic volume." Available now from the staff office is a handout of all the local, state and federal regulatory programs that exist to manage the possible environmental impacts of mall development. The Council has not taken a stand for or against any one mall. However, the Council strongly supports a thorough analysis of environmental impacts and full presentation of mitigatory measures before regulatory permits are granted.

The environmental-oriented conflicts presented by citizens ranged from purely aesthetic attitudes to economically measurable energy considerations. Tracts of undeveloped land as large as these invariabley are crossed by watercourses or contained wetlands. Citizens wanted to know how development would affect water quality, groundwater recharge, runoff, flood control, sedimentation and erosion. Often the property was once farmland and many were uncomfortable about its irretrievable loss. New traffic anticipated would require new or improved roads. Motor vehicle pollution, noise, school children safety, and parking lot vandalism became issues. Residents recognized that malls, even when served by mass transit, stimulated use of gasoline. Citizens questioned whether it was necessary to build new centers that consumed increasing amounts of dwindling energy resources.

In addition to the environmental impacts, citizen groups were disturbed by the economic ramifications of the mall sitings. The towns were promised new job opportunities and substantial increases in their tax base by mall proponents. In return the residents were faced with bearing the cost of improving police and fire protection, new road maintenance, sewer extensions and additional water supply. Not all were convinced that the retail market could support a mall in the area. Rather they felt that the new mall stores would be forced to drain existing commercial district customers and business to be financially successful. Several towns were too familiar with the ugliness of derelict malls already existent elsewhere in town. City leaders were upset that proposed suburban malls threatened the expensive but rewarding retail revitalization of their downtown shopping district.

It has become apparent that the permitting process under environmental regulations are the last bastion for mall opponents in the battle over landuse decisions. The permits are only one of the hurdles the mall developers face. Another

is the planning and zoning boards of individual towns. Public zoning hearings will provide the forum for social concerns. However, since the commissioners are often appointed and serve voluntarily, political influence plays a strong role in the eventual decisions.

The only impact that is never fully explored is the economic one. Often two or more malls within miles of each other claim the commitment of the same anchor towns. In this market of private competition, there is no mechanism to hold the mall speculator accountable for his promise. And there is no recourse for selective retail devastation and store abandonment as consumer buying capacity is exceeded. Unlike environmental parameters against which impacts must be assessed, there are no enforced guidelines for measuring economic impacts.

If an environmental impact statement were required of mall development, the economic, environmental and social issues would be aired publicly. These malls can cause significant change, but they are private investments of funds. Therefore, it is a rare and usually court-ordered occasion when an EIS will be prepared. The U.S. Department of Housing and Urban Development has taken the initiative in controlling mall proliferation with a new policy. Federal agencies will be required to do urban impact assessments to determine what effects proposed shopping centers would have on urban areas. This would occur anytime that federal monies are spent to provide infrastructure - sewer system extensions or highways - for suburban mall development. Once again, there must be a public expenditure of funds to require the analysis.

The Governor expressed state policy in Executive Order No. 20 in March of 1978. A priority goal is to "revitalize the economic base of our urban areas, by rebuilding older commercial and industrial areas and encouraging new enterprises to locate in central cities." Perhaps an ideal mechanism to evaluate suburban malls is to require a state environmental impact evaluation for proposed malls on undeveloped land. Many malls could not be developed if state funds are not expended for infrastructure and highway improvements. Some developers have offered to foot the bill for road improvements. Yet it seems unfair and unequitable that they should be exempt from the permit requirements that would otherwise be required of the Connecticut Department of Transportation and other state agencies.

In order to put the state's role in perspective and help make the public aware of the various agencies' responsibilities, a mall meeting was held by the Council. The meeting was attended by state, regional, and local officials as well as the general public.

The topic of malls was specifically discussed and large-scale development was also brought into discussion. Malls have been a politically delicate and an economically sensitive issue. With a

state such as Connecticut that is strong on local determination, adjoining communities would not be taken into account. Because of the present tax structure, large-scale developments become attractive.

The State of Connecticut has made a commitment to urban centers. Where state funds are concerned, there are controls available. In the case of private funds, there is very little the state can do. In most cases, it becomes a "pro forma" permit review.

During the discussions of large-scale development, the State Plan of Conservation and Development is often brought up. Although it does not specifically address malls, they would be considered under other types of economic development.

The Plan is used by the Office of Policy and Management when reviewing state-funded projects. It is a set of goals and guidelines where state investments are concerned. It only has a role when state money is involved.

Although the concept of malls contrasts with that of the Plan, it is only advisory. Planning and policy on a regional level can help to support the Plan's goals. By recognizing the future impacts over a wide basis, some of the failures of the past can be avoided.

The state's commitment to urban development can be seen in the Governor's Executive Order No. 20. This order established an Urban Action Taskforce that seeks urban revitalization of the economy, neighborhoods, growth, and quality of life.

Most malls are placed around central cities. While on a technical level most requirements can be met, it is the overall impacts that should be addressed.

The environmental effects of a large mall can be far reaching. In many of the present proposals, our water resources are involved. Sometimes it is wetlands and river and in other instances future drinking water supplies may be impacted.

The Department of Environmental Protection has limited controls. Most of their regulations can be met with proper engineering. A number of permits may be needed but they are not effective for any full-scale analysis of a mall proposal.

It has been suggested that a change in the Indirect Sources Permit Program has opened the door for the many mall projects. At one time, malls needed to apply for this permit but that requirement has been removed. Although this permit did have its drawbacks, at least the mall was given some scrutiny.

The air pollution effects have historically been very closely watched in Connecticut. The health side of this issue is also a concern. While the growth of a mall would concentrate pollutants, it would be impossible to tell where this pollution might otherwise go without the mall.

It was also pointed out that some positive aspects do occur. The large-scale reduces the number of automobile trips because a variety of stores are available.

It also reduces the likelihood of strip development which uses more land and auto travel. The size of the development would encourage its use for mass transit, but in Connecticut that means the bus, and it is an unsatisfactory vehicle for shopping.

The Department of Transportation becomes involved because of the State Traffic Commission. The State Traffic Commission must give a certificate to the community where the facility is being built. The Department of Transportation does the engineering for this certification. Zoning, land use, economics, are not taken into account. Their main concern is highway safety. No specific radius is considered for traffic effects; this is predicated on the traffic volume which is expected.

There is some concern as to the effects on the state highway system. When the private developer finances this construction, there is less environmental review. In allowing this to happen, the state is allowing the developer to dictate our highway priorities.

One source of aid to all the questions and concerns that were raised seems to be the regional planning agencies. They are familiar enough with the local community involved and have the regional perspective that is necessary for large-scale development.

This would enhance the decision-making of a town by providing additional expertise. A total view of the development is needed by the local boards and commissions. All too often the impact on the local infrastructure is overlooked, with the tax gains being the only visible effect.

At present, the RPAs are just advisory and work with individual communities. A mechanism to allow for regional reviews could put these large-scale projects into the proper light.

As was seen with the state agencies, each local agency is working in its own field. All these elements need to be brought together. RPAs supply little input unless a zone change or federal money is involved. In many cases, their aid must be requested.

The mall problem is symptomatic of large-scale development. Inter-town impacts need to be considered. Supporting facilities, environment, land use, and transportation are all considerations. A set of criteria would help determine which projects require a regional review.

There is much to be looked at when deciding the amount of control that should be exerted on large-scale development. Some of the problems of today, stem from past decisions and changes in the development requirements have been improved. All these factors should be carefully weighed and then a method can be determined for the proper handling of these facilities.

In the final analysis, if the state is committed to farmland preservation, improvement of air quality, reduction of motor vehicle dependence and revitalization of its urban centers, then mall proliferation is a problem that must be addressed. The rural-suburban character of the state lends itself to regional shopping centers. Each town is faced with a tradeoff. Tax, job and convenience benefits a large all brings to the town are balanced by drastic changes in the quality of life and the surrounding environment. While environmental impacts can be calibrated and evaluated, there is no assurance that siting will be economically reasonable. Towns and neighborhoods are pitted against each other with the losers being those whose malls and central business districts are abandoned.

CEQ RECOMMENDATIONS

(1) An environmental and economic impact evaluation should be required of those mall developers who require state funds to finance any part of the construction costs.

(2) Any developer proposing a large mall should provide an economic impact analysis to show how his development will not adversely impact commercial interests in the area (i.e. in excess of normal competition). This analysis should include his marketing report on the retail capacity in the area.

(3) The state investigate other permits or studies that should be required of a large-scale development to insure an environmentally sound project.

(4) Because a mall or any large-scale development decisions can impact greatly on the future, Regional Planning Agencies (RPAs) should have mandatory review powers.

(5) Make available to local boards and commissions, programs to help the members sharpen their skills for large-scale development decisions.

(6) Data that will be necessary for state permit decisions should be made available as soon as possible to the local community.

SECTION 2: FARMLAND PRESERVATION

Public Act 78-232 established a $5 million pilot program to enable the state to purchase development rights for endangered farmland. The state has begun movement in getting this act into operation. The bonding level has been increased to $7 million and a permanent program is being looked at.

Most importantly, Connecticut saw its first development purchases made under this act. A total of 374 acres of land were protected, with more approvals already received from the State Bond Commission. 1980 should see this program making a major impact in preservation.

The state will have to review additional ways of keeping some of our open spaces open as they debate the continuation of this program. Other methods or policies should also be put into effect. It may be possible to achieve the same goals through other legislative means.

One area that CEQ has looked at is the state policy towards development. At present, the state is only in an advisory position with regard to development unless state funds are involved. There is nothing to control private activities. These activities have an impact on our open space.

The ease with which our transportation system can be modified and permits acquired helps to encourage the expanding of development.

Encouraging a national commitment to farmland preservation in the Northeast would help Connecticut. The quality of open space land will have to be evaluated. Without a national interest, the growth pressures will seek regions more accessible with many cases still impacting the state with a preservation program.

SECTION 3: LEAD LEVELS IN URBAN-DWELLING CHILDREN

Lead is everywhere in the modern environment. Figure 1 shows the many pathways which lead may take to the human body. Through the medium of airborne lead particles, virtually everything which enters our bodies contains some lead. Although lead is a toxic metal, one's average daily intake from food, drink, and the air normally causes no problems.

Lead enters the human body principally through ingestion and inhalation, with subsequent absorption into the blood stream and distribution to other body tissues. Exposure to airborne lead can occur directly by inhalation, or indirectly by ingestion of lead-contaminated food, water or non-food materials, including dust and soil. Lead accumulates in the human body throughout life, to a large extent immobilized in bone. A significant amount of body lead is in the blood and soft tissues.

The EPA has set an atmospheric air quality standard to protect public health from exposure to airborne lead. Other federal agencies which have or will be taking actions concerning lead are the Department of Housing and Urban Development, the Consumer Product Safety Commission, the Food and Drug Administration, and the Center for Disease Control.

While it was known that at certain levels lead is highly toxic and can lead to health damage, it is now being found that even low levels of lead may have harmful and persistent effects.

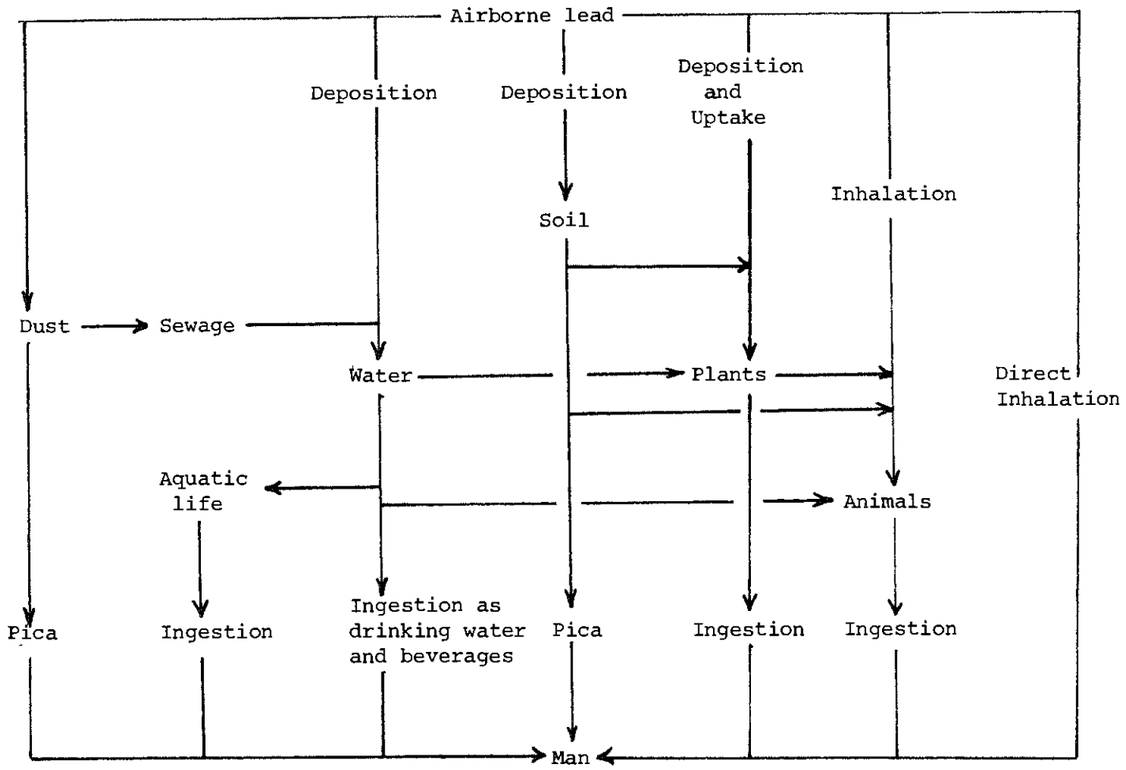
The EPA determined that of the general population, young children (age 1-5 years) are the most sensitive to lead exposure. In 1970, 60% of the children in this age bracket lived in urban areas and 25% in the center city where lead exposure is high.

About 90% of the total air lead emissions come from automobile exhausts, although the introduction of unleaded gasoline appears to have helped in reducing the urban lead levels.

When adults take in small amounts of lead (less than 500-600 micrograms per day), a near equilibrium is reached between intake and excretion. This equilibrium does not exclude a continual and permanent accumulation in the bones. When the intake is high, lead builds up in soft tissues, including in whole blood. The concentration considered to be acceptable for adults was originally 40 micrograms of lead per 100 grams of blood (mg%). This standard was set at the high end of the normal range of lead levels in children many years ago. It has since been revised to 30 mg%.

FIGURE 1

LEAD PATHWAYS TO THE HUMAN BODY



World Health Organization
Environmental Health Criteria
3, Lead, Geneva, 1977

The primary pathway of lead to children with chronic lead poisoning is generally thought to be ingestion of chips of leaded paint. Evidence was brought forward several years ago suggesting that the ingestion of dirt and dust contaminated by airborne lead may be a significant source of lead for urban children (Lepow, et al., 1974, 1975).

An earlier study (Cohen, et. al., 1973) examined lead levels in 230 rural children (Dutchess County, New York and Litchfield County, Connecticut) and 272 urban children (Hartford). The average lead level in the urban children was 10mg% higher than in the rural group. Furthermore, 25% of the urban children versus 9% of the rural subjects had lead levels in excess of the 40mg% "acceptable" level. Testing of the environments of the children with excessive blood lead implicated paint as an important source of lead for the rural children. While paint chips were thought to account for high lead intake in some urban children, ingestion of contaminated soil by pica (mouthing of non-food items) was suggested as a possible source of lead for the larger group of urban children. The investigators thought urban children were exposed to more soil lead because soil lead levels are much higher where traffic density is greater.

Dr. Martha Lepow, one of the original investigators, along with Messrs. Leonard Bruckman and Robert Rubino of Air Compliance Unit of the Department of Environmental Protection, and others, set out to investigate the source of lead for urban children with chronic lead poisoning. Intensive study of the household and play environment of 10 children with high blood lead, along with close observation of their playing habits, lead the investigators to suggest that mouthing of fingers and non-food items was the "principal cause of excessive lead accumulation" in the children studied. While the investigation did not establish the prevalence of the auto-air-dirt-hand-mouth pathway of lead, it did suggest that the environmental impacts of the use of leaded gasoline needed to be better understood.

The finding that 25% of Hartford children may show elevated blood levels is only part of the story. Acute and chronic lead poisoning results in kidney damage. Although large, short-term "acute" does have reversible effects, harm done by less-intense, long-term "chronic" exposure may be irreversible. A number of studies associate childhood lead poisoning to kidney disease later in life (More Leads on Lead, 1967).

Other lead-poisoning effects include damage to the higher nervous system, resulting in loss of acquired skills, mutism, and behavior disorders such as hyperactivity and aggressive behavior. Investigators have expressed concern in the literature that very large numbers of children may be suffering from effects of lead poisoning which may not be apparent.

It has been shown that lead levels below 40mg% can affect metabolism. As Cohen et. al. explained in their study: "the possibility exists that functional impairment may occur when blood lead levels are in the same range of the mean for the present group of urban children." This suggests that many children who are not diagnosed as having lead poisoning may have behavioral problems as a result of elevated blood lead. Such elevated blood lead levels may lie below the old "acceptable" level. Therefore, these children went largely undetected and untreated. Eventually, they may "appear in schools with learning disabilities, hyperkinetic syndrome, and other behavioral problems." (Lin-Fu, 1972).

Numerous studies have demonstrated that exposure to lead adversely affects human health. Lead has its most pronounced effect on the hematopoietic (blood-forming), nervous, and renal (kidney) systems, but may also harm the reproductive, endocrine, hepatic, cardiovascular, immunologic, and gastro-intestinal systems. Exposure to high levels of lead may have severe and sometimes fatal consequences such as brain disease, cholic, palsy, and anemia.

The implication of the above information is that many children may be victims of elevated lead intake, which has unrecognized yet potentially damaging effects. At the same time, due to differences between individuals, some children with blood lead above the acceptable level may show no signs of severe poisoning. The information presented here and in the Lepow Study suggests that when leaded paint is removed as a major source of lead to children, lead from automotive emissions may ultimately reach the children, raising the level of lead in the body and possibly causing widespread behavioral and nervous problems.

In summary:

- Urban children have higher lead intake than rural children. In addition, a greater percentage of urban children have blood lead levels exceeding the "acceptable" level.

- Even those with blood lead levels below the old (40mg%) "acceptable" level may suffer from subclinical lead poisoning.

SOURCES

Cohen, C., Bowers, G., and Lepow M. Epidemiology of lead poisoning - a comparison between urban and rural children, Journal of the American Medical Association. 226, 1430-1433 (1973).

Lepow, Martha L., et. al. Investigation into sources of lead in the environment of urban children, Environmental Research. 10, 415-426 (1975).

Lepow, Martha L. et. al. Role of airborne lead in increased body burden of lead in Hartford children, Environmental Health Perspective. 99-102 (May, 1974).

Lin-Fu, Jane S. Undue absorption of lead among children, New England Journal of Medicine. 286, 702-710 (1972).

More Leads on Lead. Food and Cosmetics Toxicology. 5, 414-418 (1967).

World Health Organization. Environmental Health Criteria 3, Lead, WHO, Geneva, 1977.

Part 8:

Conservation & Preservation

The Conservation and Preservation Division (C&P) of the Department of Environmental Protection is not as controversial as its sister division, Environmental Quality (CEQ). This lack of controversy may in part explain why it does not get the priority of Environmental Quality.

This division has the responsibility for protecting the state's existing resources such as its parks, forests, and wildlife. The direct contact with the state's citizens comes with its duties in the state park and forest recreational facilities; regulated hunting and fishing programs; boating facilities, and use of state lands for other activities.

The recreation industry has become a big part of American life. It can provide revenues and economic incentives for the state. As the economy and energy issues play a bigger part in recreational choices, our state system becomes more important.

SECTION 1: RECREATIONAL ACTIVITIES

To aid the state facility user and as an energy conservation measure, the Governor's Office suggested that C&P provide incentives encouraging residents to travel within the state for recreation. The Charter Oak Pass was made available to residents for $5.00 year-round entrance to state parks instead of having to pay the $1.00 admission fee for each visit. Unfortunately, the proposal was not received early enough to have the passes printed before the middle of July , too late in the season to evoke a large response. Approximately, 2,500 passes were distributed, of which about 1,000 were given without charge to senior citizens. This year's passes should be available to the public by early spring.

In all areas of concern, the C&P Division faces more demands from a growing population. The state will have to develop an overall plan for accomodating the future needs of state residents. The need for safe, adequate, and reasonably accessible recreational facilities must be met. As newer activities gain popularity (i.e. (i.e. snowmobiling, cross-country skiing), they also have to be taken into account.

Transit Service

As an energy saver and also an accessibility help, the summer of 1979 saw bus service added to some of the state's beaches. Connecticut transit and several other state bus services began operating two special buses on the weekend days to the most popular beach areas. This included routes around Hartford, Middletown, Waterbury, Southington, Danbury; transporting people to Hammonasset in Madison and to Sherwood Island in Westport. In addition to extra bus services, the New Haven rail line added more cars on the weekend trains to New York City, and on the Waterbury, Danbury and New Canaan lines. Special weekend fares were instituted for these revised conditions as added incentive to use public transportation.

The Conservation and Preservation Division, while not being regulatory in the senseof environmental quality, will still come under much public scrutiny. As recreational pressures increase, so will the need for C&P to reach and plan. This division will have to increase staffing and hopefully increase facilities to its users.

SECTION 2: WOODCUTTING PROGRAM

One of the more popular programs in the state is the cordwood or woodcutting program. This program allows the public to use state woodlands for firewood. The popularity of this program can be seen by the waiting list for permits.

Woodcutting is allowed on all state land that is not otherwise restricted. If a woodcutting area is closed, it is in the interest of public safety and welfare, or to protect the environment. The Woodcutting Program will be an integral part of forest management. Cutting priorities include hazardous tree removal dead material, marked standing trees, aesthetic clearings and wildlife openings.

Each region must submit an annual cordwood cutting program for their area. A cutting permit will be issued for a clearly marked area. This area will be large enough to provide the desired amount of wood and will be marked by flags, paint spots, or physical boundaries. The Permittee and supervisory personnel will be informed of the exact permit cutting area. If it is beneficial to remove a single tree, or small group of trees, to allow better access to wood within the forest, the two cord minimum will not have to be met, although the minimum charge will be applied.

The minimum number of permits that are valid at any given time will be determined by each Region. This number must be maintained, and will be shown on the annual cordwood plan. Permits issued over the minimum amount will be determined by regional management decisions.

A certain time period will be available to the public for issuing and validating cutting permits. Large-volume sales and sales to landowners whose property is next to state acreage will be dealt with separately. A waiting list for permits will be kept by each Region, with an effort to minimize repeated listing by individuals or family members. Waiting lists will be maintained indefinitely on a first-come, first-serve basis. Those on the waiting list will be notified of new area openings and will have 14 days in which to validate their permit. After this time, a person will forfeit his place on the waiting list. The permit must be validated in person so that the cutting regulations and location are understood. The person bringing in the permit for validation does not have to be its purchaser. Permit cutting time will be as follows:

2 cords	21 days
5-10 cords	60 days
11 cords or more ---	negotiable

Extensions will be granted if they are in the best interests of the state. The charge for woodcutting will conform to the minimum indicated by the annual Forest Products Price List.

There are four major points concerning the administration of woodcutting:

(1) All designated standing trees must be marked by paint or flags.

(2) Compliance with cutting standards must be enforced.

(3) Cutting areas and/or permittees must be adequately spaced to minimize conflict and confusion between cutters and other woodland users.

An individual who removes wood without a permit or in excess of the permit allowance may be arrested and prosecuted for fourth degree larceny. The use of cutting tools without a valid permit will be considered as evidence of the intent to steal wood.

A written or verbal warning may be issued if it appears that there is confusion over regulations concerning dead and down wood. Agency personnel will use discretion and good judgement in determining action in this case. Payment for the wood will be required.

Failure to comply with cutting standards may result in permit cancellation. Evidence of previous warning is recommended. This will be done by the enforcement officer writing "warned" across the permit, along with the date, reasons and the officer's signature. A second warning will void the permit which will be taken away by the enforcement officer.

Woodcutting by state personnel will be primarily for fuel for field facility heating. Any excess may be sold roadside according to current Forest Products Price List.

Current State Programs

In December, 1979, the USDA approved a $172,000 grant to improve the quality of timber growing on private land while providing the state with additional stocks of firewood. There would be a cost-sharing program where state property owners with five acres or more could have their timber evaluated by a forester. Trees designated as diseased, dying, or poorly formed would be cut for firewood to thin the forest which would improve the growth of healthy trees and increase their quality. Programs such as this are being developed due to the increased demand for wood as homeowners turn to this renewable resource for fuel. The cost of wood has risen due to the increased demand, and other programs are being designed to increase wood availability.

Even though there is more forestland in Connecticut now than there was in 1820, the state still only owns approximately 8% of it. In 1979, the state received 7,000 requests for woodcutting permits, yet only 2,500 were granted due to the lack of access roads for cars into the forests. Those with four-wheel drive vehicles and tractors had a much shorter wait. The state is trying to cut more access roads, but there is still a lack of manpower available to mark all the accessible trees that are open for cutting.

80% of Connecticut's forestland is privately owned. In the past, a hindrance to its cutting is a law which holds the landowner liable for any injuries suffered by a person he allows to cut wood, if he sells the wood. The landowner must give away the wood to avoid liability. This law was changed by Public Act 79-12 and we are seeing the development of a new forestry program backed by the federal government. The program will allocate $80,000-$160,000 to cut access roads on private property and to mark trees for cutting. The landowner would have to pay 50% of the cost of the roadwork, but could refund himself by selling the wood that was cut.

By increasing access to forestland for the purposes of wood-cutting, a renewable resource can be used more efficiently as an alternate heat source.

Property Management Unit

Some of the demands placed on the Property Management Unit of C&P seem to highlight the growing burden on state agencies. The following comments come from the 1978-79 Annual Report of the Property Management Unit:

> Requests from private parties, municipalities, public service companies and others to use for various reasons state property continue to increase. It is necessary to spend much time to review to assure that the requested use is compatible with Agency objectives and in the best interest of the general public.
>
> Public demand for recreational use of lands such as for hunting and fishing purposes increase each year, the lands and waters available for lease or by acquisition continues to decrease. With limited new lands and waters being made available for public outdoor recreation and resource management purposes, increased use pressure impacts upon our existing Agency properties.
>
> Challenges on title to state land and encroachment upon state boundaries necessitates constant vigilance.
>
> A legislative mandate to survey the boundaries of all state parks and forest lands by July 1, 1984, will not be met unless funds are made available to this Unit. The ultimate goal is to have all DEP owned lands surveyed.

Because of their dealings with property within the State, other units and agencies are involved. One of the more interesting was the authorization given to the Department of Agriculture to use six acres of DEP lands across the state for Community Garden purposes. Through the efforts of this unit, the state citizens get more access and benefit from state activities.

SECTION 4: CONNECTICUT INDIAN AFFAIRS COUNCIL

The Connecticut Indian Affairs Council (CIAC) is located in the Conservation and Preservation (C&P) Division of the Department of Environmental Protection. The Council consists of 8 members with a DEP liason person. Because of its very specific nature, it receives little outside publicity.

The CIAC consists of one representative from the following tribes: the Schaghticoke, the (Eastern) Passeatuck Pequot, the (Western) Mashautucket Pequot, the Mohegan, and the Golden Hill Paugussett. Also appointed are three persons of non-Indian lineage by the Governor.

The Commissioner of Environmental Protection has the responsibility for the care and maintenance of Indian lands. He is also the respository for tribal funds and must make an accounting each year. The Commissioner, with the advice of the Council members, may work on any necessary regulations.

With the Commissioner of the Dept. of Environmental Protection working with the Indian Affairs Council, the CIAC coordinator was placed in that department.

The Council does have specific statutory duties-Chapter 824 Section 47-59a to 47-66d. They cover boundaries, leases, the reservations and other matters including the qualifications and eligibility to live on reservations.

There have been some impediments to the CIAC's success. These can be internal such as: lack of unity among Indians or conflicting interests within the CIAC. External forces are mostly the result of priorities within the DEP.

The Indian lands in the state face the same development pressures as other lands. The Council through its coordinator could be the vehicle to provide aid in community development and land use control. Also, as an historic and cultural resource of the state, it serves a valuable function.

RECOMMENDATIONS FOR CONSERVATION & PRESERVATION DIVISION

The Council on Environmental Quality wishes to recommend the following:

1. That the Legislature adequately fund the programs of the Division of Conservation and Preservation, and that these programs be given a priority emphasis. Needed positions, particularly those for which federal matching money is available, should be funded and established immediately. Adequate funds should be provided for sufficient staffing of parks and development of recreational facilities.

2. That the Legislature consider establishing a fund for the collection of the unrefunded marine fuels tax for express use of Conservation & Preservation and to be used for development of new recreational facilities. These unclaimed and unrefunded marine taxes are simply channeled into the highway fund unless claimed by the individual boat owner with receipts to prove the gasoline purchases were for marine use. It has been estimated that 1/2% of the total gasoline sales tax revenues are due to boating activities, and that a refund could amount to as much as $1 or more per year. This money should be funneled back toward the user groups who unfairly paid the tax in the first place; it should not be allowed to meld into the general transportation pot. If established (Maine, Minnesota and North Carolina have already done so), this fund could provide a sorely needed source of recreational revenue.

3. That future trends be carefully monitored to prepare the state for further recreational facilities. Purchase of new property or development of present sites may be necessary. Letting the population have maximum, safe use of our resources is to require preparation so that adequate environmental considerations are provided.

4. The CEQ would like to see the Connecticut Indian Affairs Council work in two areas of outreach:

   (1) Assist in legislative training for the Indian tribes on a local level and increase their governmental knowledge on a state and local level.

   (2) Raise the awareness level of the state citizens concerning our Indian history.

Part 9:

DEP UPDATE

SECTION 1: LEAD AGENCY CONCEPT

The Department of Health Services and the Department of Environmental Protection have been traditionally viewed as antagonists by outside sources. This rivalry has increased and become more visible during the past year. Many of the state's environmental concerns are health related and the two departments become involved working on the same problem. Their viewpoints represent different perspectives and they reach different strategies for policy and corrections.

Add to their differences the availability of federal funds for specific areas and the clash is inevitable. Historically, the septic system regulation and drinking water areas have caused the departments to cross paths. The hazardous materials work of these departments further illustrates this conflict and suggests some changes that should be made to improve the state's service to its citizens.

The Department of Health Services and the Department of Environmental Protection must work together in the area of hazardous materials. This has been called the environmental problem of the '80s. Because of its profound impact on the public, it must be treated responsibly by the state agencies involved.

To help correct the problem of inter-department bickering, the Council on Environmental Quality suggests a "lead agency designation." One department would take the responsibility for coordinating the project and handling the data. It would encourage the policymakers of each department to be aware of the capabilities of the other. The spelling out of working agreements is a "matter of fact" operation for the Department of Transportation and the Department of Environmental Protection. Some of the experiences gained by other State departments may be helpful in getting this agreement in place.

This need for a lead agency can be seen even more clearly when dealing with federal agencies. The Environmental Protection Agency Laboratory in Lexington, Massachusetts refused to analyze state samples

taken around the Upjohn Chemical Company in North Haven because of the demands placed upon it by a number of Connecticut officials. When it became apparent to EPA officials that they were becoming involved in a state jurisdiction squabble, their offer of aid was withdrawn.

This brings out another important issue concerning laboratory work. Presently much is done at the Connecticut State Health Laboratory. This lab is a division of the Department of Health Services and therefore faces the pressures of its parent agency. This is not fair to the many state agencies that must use its services. As the state regulatory process has grown, so has the need for technical lab work. It has been recommended that a consolidated lab would be of benefit to the DEP and its EPA working agreement. This independence would further that goal. If the laboratory was given its independence, then each of the other state departments would have an equal chance to prioritize its samples.

The Council also feels that the DEP should establish a lead agency concept among its own units. Due to the complexity of the problems that face the state, many units must work simultaneously to achieve a solution. The flow of information between units must be a continual action where these mutual problems are concerned. All too often, the data available in one unit is not known, or a unit is involved with its own investigation and does not contact other units that may have an interest in the problem. This lead agency concept would also be applicable to the coordination between the two Department of Environmental Protection divisions.

Because communication is so essential to the problem solving abilities of the state, the Council on Environmental Quality makes the following recommendation:

When more than one jurisdiction is involved, be that inter-department or intradepartment, a lead agent shall be designated. One person is necessary to coordinate the activities of all responsible parties. The lead agent would be the person who will (a) control the project; (b) decide what is to be done; (c) set the priorities. The designation of a lead agent will help reduce the conflicts between the various jurisdictions.

The CEQ would also like to see the State Health Laboratory become a State Laboratory. This is necessary because of the responsibilities it has to a number of state agencies. Many state agencies who use the lab would support such a change as this. But the reality is they will not make such a public suggestion because of departmental courtesy.

A separate State Laboratory would:

(1) Put all state departments on an equal basis in terms of prioritizing their samples;

(2) Stabilize the number of employees by not having an ease of transfer to the parent agency;

(3) Place the responsibility for the lab action solely on the Director and his staff;

(4) Encourage all state agencies to centralize their lab usage knowing the lab procedures (prioritizing, analyzing, reporting) will be the same for all departments.

(5) Make reporting of the data from the lab consistent.

SECTION 2: OFFICE OF ADJUDICATION

The Office of Adjudication which was established in 1979 has now begun staffing. This office will provide a division of impartial hearing examiners for a variety of DEP permits and hearings. This new DEP section will separate the Department's quasi-judicial function from its role as a state enforcement agency, which often acts as an advocate for the people of Connecticut.

The Office of Adjudication will offer interested and affected citizens an impartial division with which to deal on public hearing matters. This unit also has the potential for standardizing procedures between units and encouraging fuller citizen participation.

This office should also help reduce delays in the permit process, while at the same time adding some further coordination to the process. A central information center to get information on the status of all Department of Environmental Protection permits will help the public and the Legislature become informed and aware of on-going environmental decisions.

As the Office of Adjudication is presently staffed, it will have to be selective in deciding which hearing will receive special attention. The more controversial permit hearings will likely become its prime concern. However, when the unit is fully staffed, it is expected to handle most of the department's permit hearings.

The creation of this division will offer other definite advantages to the departement and to the public. Department personnel will now be made available to carry out their main regulatory duties and will not have to spend time on the permit hearings. It also eases the problem of "ex parte" communications because the DEP permit staff will be able to talk to the applicant freely. Furthermore, the Adjudication Unit will be able to do more background research on each permit and the overall permit schemes. Having one area of responsibility, they will be able to settle informational problems before the hearing is commenced.

By its involvement in the hearing process, the Adjudication Unit can make the procedure better for all involved. The applicant and public will be better served by the consistency that this unit will bring to the permit process.

SECTION 3: LITTER CONTROL

Since the passage of the Litter Control Bill in 1979, the Litter Control Unit has been established, and a director of the unit has been appointed. The function of the unit will be to coordinate plans for public education, recycling campaigns, and for alloting funds from the Litter Control Fund.

The Litter Control Fund is derived from an annual assessment on manufacturers, wholesalers, distributors and retailers in the state. Although the litter control act became effective January 1, 1980, an Attorney General's decision determined that assessments are not collectible until February 1, 1981. In order to carry out provisions of the act that must be completed before the litter control funds are available, a bill has been proposed to the Legislature requesting an advance of $87,000 from the general fund. The advance will be returned to the general fund when assessment have been collected.

Because of lack of funds, the Litter Control Unit's present plans will be limited to available cost-free resources. For instance, awareness of litter pick-up and recycling will be promoted through public service announcements. With the help of the Information and Education Section of the Department of Environmental Protection, the unit is planning to introduce a program about clean-up and recycling into the public school system. If enough interest is generated from this program, a volunteer youth litter corps may be organized to conduct clean-up drives.

Once assessments are collected, the litter control program will compile information and collect money from firms. The fund will then be used to fully expand the public education program. An advertising campaign will be launched to inform citizens about recycling procedures, and visually stimulate enthusiasm for a litter-free environment. Fund money will also be used to improve litter receptable facilities along highways, beaches, parks and other public recreation areas. Free litter bags for cars and boats will be available too. Youth Litter Corps may be employed part-time and during the summer to keep the clean-up drive successful.

The Litter Control Unit can be worthwhile to the community by stimulating awareness of the Litter Control and Recycling Act, and by generating enthusiasm for a clean environment.

SECTION 4: NOISE CONTROL: ECHO PROGRAM

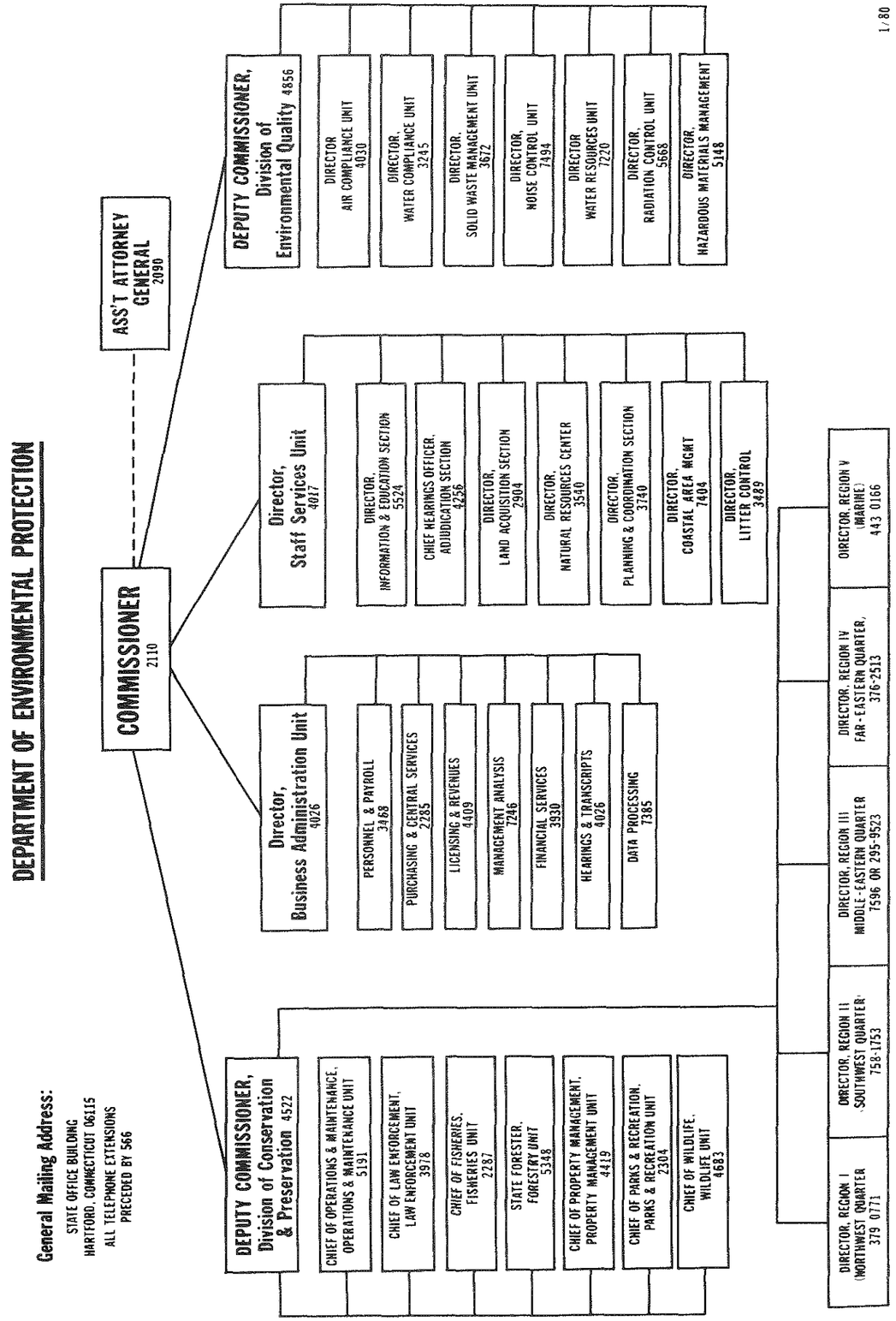
In accordance with the Quiet Communities Act of 1979, the Environmental Protection Agency (EPA) has recently funded noise control measures under the newly developed Echo Program. The program's major emphasis is towards expanding local community involvement in abating noise pollution. Towns are provided the opportunity to substantially increase their ability to implement noise control without any cost to the town itself, demanding only a small commitment of time on their part.

As of October 1979, one year grants have been distributed to major technical assistance centers in Connecticut and throughout most of New England. The University of Hartford is one such center. It has received $90,000 from the federal government to conduct basic training programs on the operation of noise meters for interested enforcement officers from any towns wishing to participate. The programs will even pay for traveling expenses of town officers who plan to attend the Hartford training session. The University will also give assistance and advice to towns which are trying to develop their own local noise ordinances, providing regulations that could be specifically tailored to the area to supplement the broad state-wide regulations of the Department of Environmental Protection. In the past, there has been trouble getting such ordinances through town councils, but hopefully with the aid of staff members at technical assistance centers, previous barriers can be overcome.

The Department of Environmental Protection has also received a grant from the EPA of $105,000 over three years to run the Echo Program. A large portion of the funding will be used toward purchasing new noise meters. Most of these will be of Type 2 costing $600 each. These are less accurate but easier to use than Type 1 meters costing between $4,000-$5,000 each. The Type 2 meters will be loaned to towns involved in the Echoprogram. When cases arise where a Type 1 meter is necessary, the town can contact the Department of Environmental Protection which is qualified to use such equipment.

Appendix

APPENDIX A



APPENDIX B

SUMMARY OF MAJOR CITIZEN COMPLAINTS

Some of the complaints investigated were:

(1) Permit Requirements and Possible Flooding Impacts Along the Quinnipiac River Due to the North Haven Mall.
A site visit was made and a report was prepared on the permit programs applicable to the project. CEQ initiated action requesting that a "404 Permit" be officially required, including the preparation of an EIS. In addition, CEQ asked the Commissioner to correct an error in the encroachment line mapping downstream from the site.

(2) Canterbury, Colchester and West Haven Landfills.
CEQ inquiry resulted in a discussion by DEP's Solid Waste Unit of its enforcement efforts and its attempts at clarifying solid waste regulations. The unit initiated a more equitable yet feasible landfill siting policy aimed at correcting existing and future problems until resource recovery plants can be effectively implemented.

(3) The Locating of the Stamford Post Office on Standard Brands Property.
The CEQ filed advisory comments at the March 15 Wetlands Hearing after meetings with the Better Neighborhood Association and the developer.

(4) Noxious Odor from Upjohn Chemical Company in North Haven.
CEQ was instrumental in providing a forum for citizen-state agency discussion. Concerns expressed resulted in intensified monitoring and sampling on the part of DEP and DOHS, with the investigation of various alleged violations of plant practices that may be contributing to the increased production of certain hazardous wastes. The ensuing discussion also pointed out reforms that were needed in working relationships between DEP, Dept. of Health Services Lab, and EPA Lab.

(5) Mill River Wetland Committee Complaint Regarding the Pollution of a Pond by Electric Storage Battery Company, Fairfield. In response to this complaint, CEQ set up a meeting between DEP and EPA on May 11 whereby an agreement was reached for proper investigation and removal of waste.

(6) Branford/Cromwell Shopping Mall.
At citizen's request, CEQ prepared a list of environment-related regulatory programs. CEQ also described design controls which mitigate environmental impacts and can be incorporated in local zoning ordinances.

(7) Disposal of Ash From Sewage Treatment Plant At Mattabassett District in Cromwell.
Cromwell worked with town and district to help resolve problem.

(8) Potential Flooding Impact Anticipated From Construction of Municipal Building in Hamden.
A site visit was made to evaluate potential flooding at Meadowbrook Apts. Assurances were given by town officials that siting and design would channel runoff elsewhere.

(9) Arts Center Garage in New Haven.
This complaint was lodged in reference to a dual environmental quality problem: transportation and air quality. Council investigation clarified a possible electrification clearance problem for future rail transport and studied the possible air pollution problem for elderly residents of the neighboring McQueeney Apts.

(10) Horseshoe Lagoon Fish Edibility Problem in New Haven.
At CEQ's request, copper levels were tested in Horseshoe Lagoon. Fish were deemed safe to eat. In addition, dates for issuance of the draft EIS for nearby Route 34 and the public hearing were clarified.

(11) Investigation of Recycling of Waste Oil as Fuel In Hartford Area.
CEQ suggested regulation of waste oil burning to be a part of the SIP.

(12) Water Testing in Southington.
Eventually with the intervention of Congressman Moffett's Office, an independent firm was hired by EPA to study responsibility for pollution of a municipal well, the first action of its type in the country taken under the Resources Conservation and Recovery Act of 1976, which concerns drinking water.

(13) Fresh Meadow Project.
CEQ issued comments on the $2 million sewer line project.

(14) Jepson Subdivision in Wallingford.
Site visit was made establishing the presence of wetlands and therefore the requiring of an inlands wetlands permit.

(15) East Hartford Flood Control Project investigated.

(16) Possible Closing of Noank Town Beach.
Resulted in investigation of state statutes and a recommendation that floats be put up as designations of safe swimming areas;

(17) Air Pollution Generated by Continual Running of Bus Engines at Mystic Seaport.
Resulted in DEP Air Compliance Unit investigating problem.

(18) Waterbury Housewrecking Company's Refuse Deposit in Navigable Waterway Investigated.

In addition, the Council also investigated the following citizen complaints: use of pesticide in fertilizer; water company land request in Hamden; storage of chemicals in Coventry; bottle bill; EIS and EIE information concern; Farm River Apts. in East Haven; small energy grants in West Hartford; Roaring Brook Diversion in South Glastonbury; widening of South Center Street, Windsor Locks; leeches and litter at Crystal Lake; ditch digging and permit information on Wilson Cove, Norwalk; sandblasting noise from Traders Dock, New Haven; wood permit information; and siting of Norwalk Community College.

APPENDIX C

SUMMARY OF SELECTED ACTIVITIES

(1) Wrote Army Corps of Engineers about need to develop a comprehensive plan to coordinate dredging activities in Long Island Sound (i.e. as a result of reviewing the dredging plans for Stamford and New Haven Harbors). CEQ acted as a watchdog with respect to monitoring the dredging program and recommended that the CAM Advisory Board be the agency to oversee the development of a dredging management plan. Gave testimony at U.S. Army Corps of Engineers hearing regarding the dredging of Norwalk Harbor.

(2) Completed Citizen's Guide to Permit Process, describing the actual permit procedures, the various agencies involved and permits required.

(3) Held major meeting on shopping malls to begin a dialogue between state agencies, regional planning agencies, mayors and selectmen, and community groups.

(4) Met with Office of Policy and Management concerning CEQ's suggestions regarding additions to DEP and DOT documents, some of which were incorporated by OPM.

(5) Assisted DEP's Air Compliance Unit in its public participation program for the SIP

(6) Supported Groton Beach Project, while expressing concerns for proper sewage treatment and water handling so as not to affect quality of Poquonnock River.

(7) Assisted DEP's Air Compliance Unit by doing written evaluation of old (existing) and new (proposed) regulations of its Indirect Source Program. The new regulations were critiqued and recommendations were made for changes which would strengthen weaknesses in new program.

(8) The Federal Energy Regulatory Commission solicits responses from the Council when license applications for hydropower projects are reviewed. These applications must now take into account public use of some of the lands owned by the utility company.

(9) Reviewed and commented on the draft environmental impact statement for Route 11 through Salem, Montville and Waterford and sent it to the Federal Highway Administration.

(10) Held various meeting with DEP and state agency personnel to pursue some of the recommendations in the 1978 CEQ Annual Report.

(11) Attended meetings with Connecticut Association of Director of Health on delegation of authority to local health directors.

(12) Participated in Annual Environmental Leaders Conference, sponsored by the Oceanic Society. Continued attendance at Environmental Caucus meetings and generally attempted to maintain an open dialogue with Connecticut's environmentalists and groups.