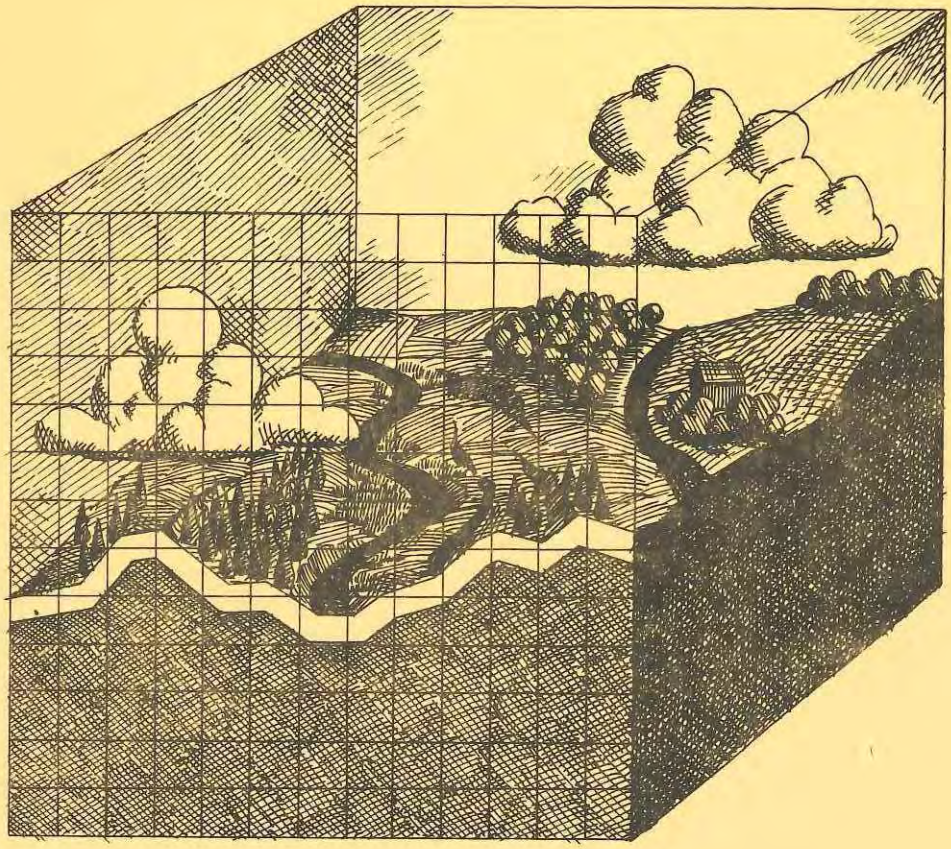

The Connecticut Council on Environmental Quality

Annual Report 1980

Table of Contents

STATE OF CONNECTICUT

COUNCIL ON ENVIRONMENTAL QUALITY

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The Honorable William A. O'Neill
Governor, State of Connecticut
State Capitol Building
Hartford, Connecticut 06115

The Honorable James J. Murphy Jr.
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 O'Neill, Senator Murphy and Representative Abate:

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

This report covers a broad area of environmental topics including past activities of the Council, the current status of Connecticut's, air, water and land environment, the adequacy of available natural resources, a review of state environmental programs and the Council's recommendations for improving these programs as required by Section 22a-12 of the Connecticut General Statutes.

One of the crucial issues facing the state in the coming year is what is to be done with the large quantities of hazardous and solid waste each year. There is no hazardous waste facility located in the state. Existing landfill sites are rapidly being filled to capacity. The potential impact on our drinking water supplies and other natural resources is great. Responsible planning and management by federal agencies and private industries are needed to prevent any long-term dangers to the health and quality of life.

Another major issue confronting us is the potential conflict between energy and environment. Some would have the state relax environmental regulations, and burn dirtier fuels which are cheaper. Others point out that if this were done, economic development might be restricted and the health of our citizens might be impaired. Also of concern is the issue of highway construction and the development of the state's recreational facilities.

The Council has worked on many citizen requests during the past year. The divergent backgrounds of Council members has given the CEQ a balanced perspective in its deliberations. The workload of the Council on Environmental Quality has continued to increase in the past year and is summarized in this report. The Council works with a number of state agencies and many private groups. To aid public participation the Council distributed two publications, "A Citizens Guide to the Permit Process" and an "Environmental Phone Guide".

Finally, members of the Council would like to thank the many people who assisted us over the past year. We wish to pay special tribute to Governor Ella T. Grasso for her years of faithful support to the cause of a clean environment. We also with to thank her for her support of the work of this Council.

Respectfully submitted,

Donald L. MacKie,
Chairman

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Acknowledgements

The Council wishes to express its sincere appreciation to the many people who contributed to our efforts in 1980. The interest and support from many areas has a valuable aid in our work.

Additionally, our thanks also go to Linda Infante of the CEQ staff who performed many functions from beginning to end in compiling this report.

We would like to thank the CEQ interns for their work, Donna Pienkowski for her work on the Air and Water Sections, Peter O'Connor for his work on the Air and Environment/Economics Sections, and Denise Eschenbrenner for her work on the Water Section.

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

Introduction

1980 saw the emergence of hazardous materials as a major environmental topic. Issues were raised concerning its handling, discharges and eventual disposal. The effect of these materials on our air and water were a constant concern. Added to that came the overriding concern of public health. The long term effects of exposure to these materials was consistantly questioned.

"An act Concerning Hazardous Waste Facilities" became the most debated issue of the General Assembly. Much of the work going into it has been done by the Environment Committee. The Environment Committee arranged to have the public hearing on this bill carried by Connecticut Public Television (CPTV). This kind of public involvement is very much needed in a controversial bill such as this.

In the past landfill siting has been a major concern. Contamination caused by improperly sited facilities has lead to an even more cautious approach where hazardous materials are concerned.

Contamination episodes combined with the prospect of an extended drought have made our water supply a major issue. Homeowners across the state have suffered from contamination of various kinds. Private dwellings, industry, and municipalities have all been problem sources.

Local and state reaction has been stressed in many instances. There is support among state residents to provide the Department of Environmental Protection and Department of Health Services with the necessary equipment to handle this task. An alternative source of drinking water is a major concern for many homeowners. Besides the private well owner, water companies have also expressed their concern. Growing industry and lower flows have increased the need for water supply protection. Reevaluating some past decisions in regard to our water supplies may now be necessary. As we reach the Summer of 1981, the prospect of a long drought will make water supply protection even more essential.

The need to protect water supplies meshes with the concern of large-scale development. Land use and regional impacts have become more important as energy considerations are taken into account. All too often the large-scale developments are planned for areas that have a water related impact. While urban centers are fearful of losing their economic base, drinking water is also being threatened.

Environmental protection has always had to bear the scrutiny of its economic impact. This is more probable today in light of the present economic conditions. Energy and health effects are also being looked at quite seriously. When any comparison with economics is made, it must be remembered that the full effects have to be considered.

Environmental efforts will have to continue to maintain our present benefits. The illusions sometimes offered in the short term must be reacted to accordingly. The competition for support will be great. Our environmental programs have to meet that challenge, with their past record of achievement and future successes.

Activities of the Council

The Council on Environmental Quality has the responsibility to review and comment on various plans and proposals by the Department of Transportation and the Office of Pollicy 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 times. 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 (CEPA). The evaluations describe the potential environmental effects of proposed actions of state agencies.

Other material received for comment by the CEQ include Industrial and Business Development (IBDs) project proposals. IBDs are progam 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.

Another review and comment aspect of CEQ is the review of A-95s. 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) the Council may comment to the Power Facilities Evaluation Council, (PFEC). Copies of PFEC applications are made available to CEQ.

Applications for licensing from the Federal Energy Regulatory Commission (FERC) 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.

With the concern for energy, more hydropower permits are being applied for. Our rivers may once again become a prime energy sourcce but their other uses will have to be maintained.

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 served on the State Implementation Plan Revision Advisory Committee and Congressmen Toby Moffett's Hazardous Materials Task Force.

The CEQ also served as a coordinator for the Earth Day activities in Hartford. Our membership has been requested to serve on advisory boards for grant applications by groups such as the Audubon Society and Yale University Medical School.

This year the Council also made an effort to reach more of the public. CEQ members participated in a number of radio talk shows throughout the state. The formats ranged from half-hour discussions to three-hour phone in question and answer programs. Council members have also been guest speakers on college campuses and at meetings of various organizations.

During 1980 the Council on Environmental Quality also produced two publications intended to make citizen participation in environmental problems easier. The first was a "Citizen's Guide to the Permit Process" which detailed the regulatory responsibilities of the Department of Environmental Protection. Included in this was a section on the public hearing procedure. The second item was an "Environmental Phone Guide". This was published to give a one page listing of all the necessary Department of Environmental Protection numbers. Other state agencies and related groups that could be of assistance were also listed.

The Council's review responsibilities bring it in contact with state and federal agencies. The Department of Transportation has been one of the first agencies involved in this process. Their detailed roadway designs as well as environmental statements are submitted to the Council for review. Related to transportation are reviews of bridge structures that the United States Coast Guard has authority over. These are also received by CEQ.

Other federal agencies such as the Environmental Protection Agency or the Department of Energy also ask for CEQ comment. Much of this is in regard to rules and regulation promulgation.

On a state level many of the Connecticut Environmental Policy Act (CEPA) statements come from the Department of Administrative Services which initiates action for most state agencies. After one year the process still has some problems. The experience gained may help in smoothing out future problems and the process.

The other major source of reviews come from the Department of Environmental Protection. Besides reviewing as part of CEPA requirements, the CEQ gets involved with other aspects of the department. Permits (also reviewed in conjunction with the Corps of Engineers), regulations, and plans are sent to the Council.

Citizen complaints still provide the majority of involvement for the Council. Many requests cross department lines and require a good working relationship with various state agencies. Some requests can be as simple as a correct phone number or reference person. Other times it can get as complicated as the Upjohn Chemical Company in North Haven, where the Council has been involved since August of 1979.

The ability to get answers and a one stop information center helps relieve the frustrations of many citizens unfamiliar with the bureaucratic process. Our requests have been answered promptly by the state agencies, helping to get the correct information out as soon as possible. Individuals, groups, and statewide organizations all take advantage of this service.

Recommendations Summary

In each Annual Report the Council on Environmental Quality has included recommendations towards the enhancement of the state's environment. The various activities of the Council on Environmental Quality are responsible for bringing forward these suggestions. Many times a citizen request stimulates an action that leads to a recommendation. Our relationship to the local, state, and federal levels give us an unique overall perspective.

Many of our past recommendations have been acted upon. Other suggestions are now coming into the critical stage. Included are our 1980 recommendations and a review of some of our past recommendations that are still dominant concerns.

PART 1: WATER

The issue of solid waste management will be of great importance in the coming years as the transition is made from traditional land disposal to resource recovery. Funding, staffing and other forms of support will be necessary for Connecticut to meet the serious challenge it faces.

1) Maintain an adequate water quality monitoring program.

2) Encourage the establishment of aquifer protection ordinances by local communities.

3) Waste siting, water supply development and preservation policies be coordinated. The public must be assured that all necessary safeguards are in place.

4) See Appendix A for recommendations from the Council on Environmental Quality's Drinking Water Contamination Meeting held on November 22, 1980.

PART 2: HAZARDOUS MATERIALS AND SOLID WASTES

1) In order to promote the goals of the State Solid Waste Management Plan and assure that solid waste is disposed of in an environmentally sound manner several steps must be taken. The promotion of source separation and recycling programs should be actively encouraged through state assistance to localities, especially those facing a landfill shortage. These programs require little effort, once started, when compared to the benefits gained.

2) The Solid Waste Management Unit also needs a stronger enforcement mechanism. The present system of notices, orders and appeals fails to promptly address serious violations. An incentive such as a fine should be available to speed compliance and help alleviate the cost to clean up a damaged environment.

3) In order to prevent unsafe operations from occurring, funding should be assured for monitoring and siting programs.

PART 4: AIR QUALITY

1) Sip Update

a. Transportation planning is felt to be an important tool in air pollution control. The Council is concerned that changes in present plans are too easily achieved to accomodate new development. Future development must be included in transportation planning and developers must be encouraged to adhere to existing plans. Efforts to clean the air such as this are only productive when carried out and enforced.

b. The Council finds the language of the commitment to public transportation to be weak. We suggest that a more concrete commitment is in order and a substantial indication that priorities will be reestablished to provide sufficient transit service is necessary. It is important to make investments in and commitments to public transportation now, before the need becomes even more pressing.

c. The Council is concerned with the effectiveness of the inspection and maintenance program. We feel that a sticker program may hold less incentive for compliance than inspection as a condition for vehicle registration. The Council recommends that the effectiveness of the sticker program with local enforcement be monitored to see if a vehicle registration format would be more appropriate. We would also urge the Environmental Protection Agency to strictly require neighboring states to meet all air standards to assure that Connecticut does not suffer the consequences of pollution from other states.

2) Acid Rain

a. Conversion of power plants to coal use should be discouraged, especially in Connecticut, unless "scrubbers" or other pollution control equipment are included.

b. Connecticut presently has more rigorous sulfur dioxide emissions standards than the federal government.

Because most of Connecticut's SO_2 and NO_x comes from outside its borders, the state should encourage the federal government to increase its pollution standards to Connecticut levels and thus aid Connecticut and the nation to alleviating its acid rain problem.

c. The state should establish an acid rain testing program. The pH must be tested as well as NO_x and SO_2 levels in order to decide what is the makeup and thus the source of our acid rain. Since Hartford is not an industrial city, the surrounding areas' acid rain may be the result of NO_x emissions from automobiles. If this can be determined Connecticut may be able to deal with some of its acid rain problem on a regional basis related to transportation.

3) Coal Conversion

a. When a Connecticut utility is prohibited from using oil or natural gas, the Department of Environmental Protection should request a public hearing and raise the question of solid waste disposal since no long-term disposal sites exist in Connecticut. The problem of acid rain should not be allowed to fade from public view and this issue should also be addressed at each public hearing.

b. It has been estimated that a significant percentage of Connecticut's air pollution comes from out of state. The Department of Energy should provide funds to minimize the air pollution effects of coal conversion so that economic development can continue in Connecticut.

c. The PSD (Prevention of Significant Deterioration) program of the Environmental Protection Agency restricts the amount of polluting industry that a state can allow within its borders. In order to allow for economic development in states like Connecticut, the Department of Energy should require the best pollution control technology with its coal conversion projects so that these projects will not use up an unnecessarily large portion of our PSD allotment.

d. The Council on Environmental Quality recommends that Connecticut maintain its ordinance limiting the sulfur content of the oil used by utilities to 0.5 percent. If future energy considerations present a more pressing need to use high sulfur oil, all available pollution control measures should be taken in order to protect past air quality gains.

PART 5: LEGISLATIVE CHANGES IN ENVIRONMENTAL LAWS

4) Bottle Bill

Positive incentives experienced from the Bottle Bill far outweigh any responsibilities felt through this awkward adjustment period. Any new law must go through a time such as this. Although Connecticut is not "in the clear" yet we have progressed substantially since January 1, 1980 when the Bottle Bill first went into effect. There is always room for improvement.

a. The Council suggests the establishment of more redemption centers. With state help this can be accomplished, successfully streamlining the effectiveness of the law and alleviating many business complaints.

PART 6: UPDATES

1) Woodcutting Program

a. The present means of funding the Woodcutting Program should be changed so that the program is financially self-sufficient.

b. The price of wood to be removed from state forests should be raised to more nearly approximate the market price of uncut wood.

c. The money generated from these sales should then be used to fund more personnel in the Forestry Unit to operate the woodcutting program.

d. The wood should be brought to access sites where individuals may cut. This would help control illegal cutting as only authorized personnel would be cutting and "poachers" would be unable to pass as permit holders. We believe this method of operating the program would increase its usefulness as both a forest management and fuel supplement program.

2) Farmland Preservation

a. Various methods of protecting our agricultural land should be tried. Available means of protection include the institution of agricultural zones regulating the size of land that accompanies each dwelling unit. Some states employ agricultural districting which cites agriculture as a preferred use and allows for preferential tax treatment. Since zoning is not presently used here, and many Connecticut farmers still believe that inheritance and estate taxes are major reasons for farms being sold to developers, these options should be investigated.

b. In addition to efforts aimed specifically at rural areas, a strong urban revitalization policy is also important. By preserving cities and concentrating housing and other development in these areas, pressure will be taken from farmland. Other projects such as highways, power plants, and airports should also take farmland into consideration through the Connecticut Environmental Policy Act process.

Whatever the means used, the goal of farmland preservation must be met. The prospect of less dependence for food, greater pollution absorption capacity and other cultural, economic and environmental benefits should be incentive enough. Farmland preservation is not only for farmers and rural dwellers, it is in the best interest of everyone.

Past Council on Environmental Quality Recommendations

1) Lead Agency Concept

a. 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 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, control the project, decide what is to be done, and set the priorities of the situation. The designation of a lead agent will help reduce the conflicts between the various jurisdictions.

2) Connecticut Environmental Policy Act - Amendments

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

b. Determine, if this is the case, whether the agency must conduct and environmental impact evaluation.

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

d. If there is state involvement, determine whether the state agency or mall developer is the sponsoring agency.

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

f. The Council suggests that major private development be required to comply with Connecticut Environmental Policy Act 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.

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

3) Delegate to Local Health Officers Enforcement Authority for certain "Nuisance" Programs

a. In an effort to maximize resources available on the local level as well as on the state level, it would seem prudent for the Department of Environmental Protection to delegate certain "nuisance" permit programs to municipalities who are willing to accept such delegation and who have available staff to implement such a program. A prime candidate for this type of local delegation is the odor program, which involves a series of subjective evaluations. Due to the lack of enforcement personnel in the Air Compliance Unit, the odor control program is often the least enforced and the most poorly implemented program in the Air Unit. The Council has been approached by a local public health officer with a request that it investigate the delegation of such authority to local health officers. The Department of Environmental Protection has indicated its tenative support for such delegation, particularly for the odor control program.

4) State Health Lab

a. The Council on Environmental Quality 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 at this. But the reality is that they will not make such a public suggestion because of departmental courtesy.

A separate State Laboratory would:

b. Put all state departments on an equal basis in terms of prioritizing their samples.

c. Stabilize the number of employees by not having an ease of transfer to the parent agency.

d. Place the responsibility for the lab actions solely on the director and his staff.

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

5) Carcinogenic Substances

a. 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.

b. In laws where questionnaires are to be used, non-compliance must be taken into account. The Carconogenic 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.

c. The industries using hazardous substances be strictly monitored. They cannot be treated the same as our traditional manufactruing industries.

6) Provide Increased Environmental Review and Natural Resources Assistance

a. The most creative and significant program within the Department of Environmental Protection which is non-regulatroy in nature is the Natural Resources Center. Established for the specific purpose of providing baseline environmental data to local landuse decision-makers, the Natural Resources Center has played a significant role in helping to assure uniform landuse decisions based on a natural resource data base. Development errors made in the past, such as siting landfills over aquifers, should not be repeated now that the Natural Resources center is in a position to coordinate natural resource information for local communities. A significant program that the Center is involved with is the Resource Conservation and Development "environmental review team".

At the request of a local municipality, state agency, or regional planning agency, a team composed of environmental experts in various disciplines (soil scientists, wildlife biologists, hydrologists, geologists, engineers, etc.) will visit a proposed developmental site and evaluate its natural resource characteristics. This expert review then becomes part of the information for use by local decision-makers. It is a significant means of providing detailed scientific information on the ability of the land to support development to lay decision-makers who normally would not have this information at their disposal. The extent that Connecticut communities are able to utilize this resource, local development can take place in a rational and resource-conscience manner.

Unfortunately, the environmental review team is composed of experts who carry full-time jobs in addition to their participation on the team. Substantial funding has never become available to sponsor sets of teams to serve regions throughout the state. The Council strongly urges that the legislature appropriate a modest sum of money to insure the creation and continued funding of environmental review teams in all of the Resource Conservation and Development or other regional areas of the state, to be made available to local communities free of charge. Their recommendations for development would become part of the record of every local development application, but these findings would not be binding upon the planning and zoning or inland wetland commission's decision.

An environmental review team provides the state with an opportunity to avoid disastrous development impact: failing septic systems in areas of poor soil drainage; intense development over areas of high priority water supply; improper development in sensitive natural resource areas, causing severe erosion or sedimentation; and excessive runoff causing severe flooding in many local communities.

7) Farmland Preservation

a. The state should encourage a national commitment to farmland preservation. As with all environmental laws, consistancy is needed so that one state will not be doing its share while others mismanage and gain economically.

Part 1:

Water-Related Activities

SECTION 1: INTRODUCTION

During the last few years, problems have arisen with public and private water supplies in a number of Connecticut towns. Ground water and aquifer protection has become an important issue, recognized by many state legislators, governmental agencies and municipalities.

Many of the people throughout the state have experienced these problems. The Council has acknowledged the importance of the water supply issue in its last two Annual Reports to the Governor and Legislature. Water quality problems have occurred in a number of towns in Connecticut. Contamination has been caused by a variety of practices both public and industrial: out-dated waste disposal methods, spills over development, and poor storage procedures.

Although much aquifer research is underway more information and new preservation strategies will need to be developed to protect this irreplacable resource for future generations. The state has an urgent need for new waste disposal sites and the quality of our water supplies must also be protected. These complex problems are interrelated and must be continually addressed.

Water quality problems have occurred in a number of towns in Connecticut during the last two years. Certain regions of the state may face severe drinking water complications during this decade. Periods of drought as well as contamination are adding to this problem. It is clear that we must gather information and plan preservation strategies that will protect this invaluable resource for future generations.

Because of the concern with water quality, the Council on Environmental Quality held a special meeting in November on Drinking Water Contamination. The suggestions made at that meeting are in Appendix A.

SECTION 2: WATER QUALITY

According to the 10th Annual Report of the President's Council on Environmental Quality the quality and quantity of the nation's water resources of all kinds continue to be threatened by pollution and misuse. There has been little or no change in the levels of the five major water pollution indicators. Rising population and increased industrial development appear to be keeping pace with clean up efforts. However, while there has not been vast improvement in water quality in the United States since the early 1970s, at least it is not getting worse. Improvements in specific locations have been seen, largely due to better control of industrial and wastewater treatment pollution.

Two of the major national goals stated in the Federal Water Pollution Control Act are that:

- The discharge of pollutants into navigable waters be eliminated by 1985.

- Wherever attainable, an interim goal of water quality which provides for the propagation of fish, shellfish and wildlife and provides for recreation in and on the water will be achieved by July 1, 1983.

Unfortunately, once traditional sources such as sewage pollution and industrial discharge are taken care of new problems from non-point sources become evident. Because of this it appears unlikely that Connecticut will meet the "swimable and fishable" goal by 1983. The Environmental Protection Agency estimates that approximately 68 percent of the state's major rivers will be suitable for those purposes by that time. However, because Connecticut started this effort with dirtier rivers the progress can be seen as significant.

On the whole, the clean up of rivers has proved much more difficult and expensive than expected. For example the Connecticut River after 15 years and a billion dollars still requires an estimated 10 years for clean up. Non-point sources, a large part of the present problem, promise to be difficult and expensive to alleviate. Urban and agricultural runoff, combined sewer overflow and toxic chemicals all pose substantial threats to Connecticut's waters, but are not easy to control. Farmers and planners must be alerted to the problem and thorough monitoring must take place.

Water quality protection is of particular concern in view of difficulties with obtaining funding for a monitoring program this past year. The United States Geological Survey (U.S.G.S.) presently monitors 42 stations across the state for water quality. In order for this eight year old program to continue, half of the funding must be supplied by the state at a cost of approximately $150,000. It is also a prerequisite for a federal Environmental Protection Agency grant for water pollution control amounting to $750,000. This past year the legislature killed a proposal to fund the monitoring network putting the program and federal grant in jeopardy. Fortunately funding was later supplied at the urging of local environmental groups and the Department of Environmental Protection. A funding request will again be submitted to the legislature next year. Hopefully the USGS program, an integral part of the state's entire water quality program, will be able to continue. The Council feels that the monitoring network and the programs supported by the federal grant are essential to the health of the environment and the people of Connecticut. We strongly recommend that funding for these programs be assured to prevent the difficulties encountered this past year. Ground water problems occured in various towns in the state. Some included,wells contaminated with the carcinogenic substances tetrachloroethylene and trichloroethylene, wells supplying eleven homes made unpotable by a gasoline spill, past illegal dumping of chemicals contaminated twenty residential wells, well water at a community college and residents of an industrial park contaminated with trichloroethane and tetrachloroethylene, and leachate from a landfill contaminated the water supplies of twelve families. These are just a few examples of the problems confronting the 35 percent of Connecticut's population depending upon ground water for domestic use. This year,because of increasing threats to drinking water supplies, the Water Compliance Unit of the Department of Environmental Protection has proposed changes in Connecticut's water clean up program. For the first time, ground water supplies will be regulated.

The Water Compliance Unit is currently working on revision of the State Water Quality Standards and criteria as required under the Federal Water Pollution Control Act. This year for the first time standards and classification of ground water were determined by means of a survey. The purpose of the survey was to identify the location and catagorize the quality of ground water sources. Each watershed was looked at individually to assess the water's suitability for various uses. Factors considered here include present locations of public water supplies, proximity to point sources, and the hydrogeology of the area. The proposed classifications and their meanings are as follows:

GAA: Existing or proposed public drinking water use without treatment, may be suitable to receive discharges of domestic sewage or wastes from acceptable agricultural practices on baekwash from public drinking water treatment systems or other minor cooling or clean water discharges.

GA: May be suitable for public or private use as drinking water without treatment, may be suitable to receive discharges permitted in GAA areas in addition to effluents containing substances of natural origin or material which easily biodegrades in the soil system.

GB: May not be suitable for public or private use as drinking water without treatment, may be suitable for receiving discharges permitted in classes GAA and GA and certain treated industrial or residential development has or is likely to render the ground waters unsuitable for drinking water without treatment, known or presumed to be degraded.

GC: May be suitable for certain waste disposal practices because past landuse or hydrogeologic conditions render these ground waters more suitable for receiving permitted discharges than development for public or private water supply. May be suitable for all discharges allowed in other areas as well as other discharges that will not cause a violation of adjacent surface water classification.

The results of the survey and classification will be important in locating future water sources, determining problem areas in need of clean up and to help in siting waste disposal areas. Unfortunately the present classification program is not supported by extensive monitoring. Some information is available from testing of municipal wells and test wells located near landfills but for the most part classifications represent approximations of conditions. A ground water monitoring network would greatly enhance current efforts to protect water quality. However such a program would be expensive and to date funding requests have not been granted. Perhaps as the seriousness and extent of the contamination problem become more evident this situation will change.

Like other forms of pollution, ground water contamination effects health, property and future land use. Ground water is a very important but fragile resource. Once contaminated it may remain unuseable for hundreds of years, even after the sourcr of the original contamination has been eliminated. Precautions must be taken now to prevent future long-term or irreparable damage. Water is a resource that everyone needs.

SECTION 3: AQUIFER PROTECTION IN CONNECTICUT

The Problem

The importance of underground water supplies has been recognized and acknowledged by a number of state legislatures, governmental agencies and communities throughout the country. This Council examined the water supply issue in its last two Annual Reports, 1978 and 1979. As the 1979 Report stated:

> 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 land filling.
> (Connecticut Council on Environmental Quality, 1979 Annual Report, Page 63)

Water quality problems have occurred in a number of towns in Connecticut during the last two years. Certain regions of the state may face severe drinking water complications during this decade. It is clear that we must gather information and plan preservation strategies that will protect this invaluable resource for future generations.

The Council's 1979 Annual Report went further in its discussion of this need for information and coordination. The Council found that:

> 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.

Furthermore, the Council made the following recommendation to the Governor and the legislature:

> (That) a comprehensive surface and ground water 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 (to be taken).

The Federal Council on Environmental Quality (FCEQ) made a number of startling findings in its last Annual Report to the President and Congress. That the Council stated that waste management practices too often took a simplistic, "out of sight, out of mind" approach to disposal, with little or no regard for the:

> ... cumulative effects upon ground water of leachates from sanitary landfills, sludge storage, highway deicing salt, mine tailings and industrial waste pits. (FCEQ, 1979 Annual Report, Page 110)

The Council's report also indicated that the site - specific effects of seepage from septic tanks, sewage lagoons, industrial lagoons and "combined" sewer systems had not been generally recognized or studied. The Council clearly stated that:

> Once contaminated, ground water may remain unusable for hundreds of years even after the source of original contamination has been eliminated.

The Environmental Protection Agency completed a survey in June, 1978, that identified 133,000 "ponds, pools, lagoons and pits" used for treatment storage and disposal of wastes.

Many of these ponds are located in Connecticut and most are unlined, allowing wastes to seep into the ground. At present, very little is known about the impacts of solid and hazardous waste storage facilities on ground water.

Connecticut's Response

As the second state in the nation to receive primary responsibility under the Federal Safe Drinking Water Act of 1974, Connecticut has a good record of protecting and restoring its waterways. However, our state's water quality may seriously decline during the next few years unless an agressive and well funded research effort is made by state and local governments.

I. Connecticut's 208 Program

(See generally Connecticut Council on Environmental Quality's 1978 Annual Report, Page 49 for description of the program)

Initiated in 1976 with a one million dollar grant from the Environmental Protection Agency to begin the planning process for assessing impacts of "non-point" sources on the state's waters. Inventory work has been done and regional planning agencies have been conducting special, region-specific studies of water supplies and their quality.

A great deal of work has been undertaken and completed by our 208 Program and they are to be commended for thier efforts. The recent publication by the Program the, "Guide to Ground Water and Aquifer Protection", provides a starting point for future research and planning efforts.

II. Department of Environmental Protection Natural Resources Center

In cooperation with the United States Geological Service and the 208 Program, the Natural Resources Center of the Department of Environmental Protection has been developing maps of the state which indicate areas where potential ground water supplies exist. As stated in this Council's 1978 Annual Report:

> These areas (of ground water supply) tend to follow the present and prehistoric courses of rivers, which deposited loose sand and gravel which serve as the most abundant underground storage material. Unfortunately for water quality, river basins are also the most heavily settled areas of the state and the location of most of the existing sources of contamination, such as septic tanks for sewage disposal, industrial waste disposal areas, road salt stock piles, landfills, gasoline storage tanks and permitted discharges into surface waters.

The Natural Resources Center has received second year funding for continued aquifer inventory and mapping work. At least a third year of research will be needed to establish an adequate data base for arriving at reasonable water planning decisions.

III. Hazardous Waste Siting

This complex environmental issue has been recognized by the legislature as one of our state's most pressing concerns. New legislation and agency operations will be developed during the next few years to implement Connecticut's hazardous waste strategies. Reports on siting criteria are being prepared by different agencies in the state and region. Water quality protection will clearly play a large role in the eventual program.

IV. An Act Concerning Municipal Aquifer Protection (Public Act 80-372)

The Connecticut legislature recently enacted an amendment to the Planning and Zoning Enabling Statute, Section 8-2 of the Connecticut General Statutes. This enactment reorganizes ground water and aquifer protection as a legitimate police power concern and provides local Planning and Zoning Commissions with authority to implement regulations for the protection of ground water quality.

However, towns will be reluctant to exercise this power without additional information and perhaps, financial support. Towns are generally uninformed about their water supplies and their future aquifer demands. Development in many aquifers may affect future water supplies.

Every effort must be made to coordinate the efforts of the various agencies, since this issue involves federal, state and local authorities. The towns must have access to the best available information regarding their water supplies and the quality of them.

The Role of the Connecticut Council on Environmental Quality

The Council acknowledged the importance of the water supply issue in its last two Annual Reports ot the legislature. Water quality problems have occurred in a number of towns in Connecticut including Southington, Tolland, South Windham, Brookfield, Beacon Falls, Darien and Farmington. Contamination has often been caused by industrial activity primarily due to out-dated waste disposal practices, landfilling and overly intensive development. It is now essential that waste siting, water supply development, and preservation policies be coordinated in a comprehensive land use strategy.

Given these facts the Council on Environmental Quality has adopted a water quality policy statement, (see Appendix B).

Along with a comprehensive monitoring network needed to alert us to water quality problems, an aquifer protection program is equally important to prevent further or future contamination of water supplies. We are just now beginning to realize the ill effects of past land use practices such as industrial and municipal waste disposal and must learn from our mistakes.

Total	Number affected	Source
335	30	Reported industrial waste ground disposal sites are known to have caused contamination.
185	24	Active landfills are known to have degraded ground water.
126	13	Road salt stockpiles have caused contamination leading to a change in storage policy.
554	50	Incidents of spills and seepage resulted in over 44,000 gallons of hydrocarbons reaching ground waters.

(The Connecticut 208 Program: Guide to Ground Water and Aquifer Protection)

Obviously the regulation of certain land use activities will be essential to preventing the loss of valuable present and future water sources.

Unfortunately river basins, the state's most productive water bearing areas, are also the most heavily settled and industrialized areas as well. In order to protect the aquifers underlying these developed areas, coordination is needed between various planning and management efforts at federal, state, and local levels. Some legislation already addressing this issue in part include:

Federal	State
	Inland Wetland and Watercourses Regs.
The Clean Water Act	Various Public Health Codes
The Safe Drinking Water Act	Water Pollution Control Policy
Resource Conservation and Recovery Act	Solid Waste Management Plan

Aquifer protection should be considered in the regulation of activities such as: solid waste disposal, septage disposal, industrial development, and waste handling, storage, transfer, and spills of petroleum products, road salt storage and application, water softener waste disposal. and agricultural practices. Many of these activities come under local control and are most easily enforced at that level. Local involvement in terms of management, planning, and enforcement of land use practices is an integral part of aquifer protection.

Public Act 80-327, An Act Concerning Municipal Aquifer Protection, provides for inclusion of plans for "protecting existing and potential public surface and ground drinking water supplies" into a plan of development for a municipality. This means that localities can protect ground water through zoning. By regulating land use above direct recharge zones water supplies can be protected. In addition the state must be involved in instances where recharge zones extend across multiple town boundries or where surface water quality affects aquifers. The state should offer assistance to towns when their water supply is affected by activities in adjoining areas and surface waters affecting ground water should be given priority in clean up efforts. Care must be taken to protect both aquifers and their associated recharge areas through existing regulations and the permit process.

In most cases laws already exist to carry out an effective aquifer protection program but they must now be applied to a new area. For example solid waste landfill siting must consider ground as well as surface water effects and gasoline storage regulations must protect against water contamination in addition to fire hazards. An awareness of the relationship between aquifer protection and many land uses currently in practice must be raised. A committment is then needed to coopertatively work at all levels toward achieving a complete ground water protection program.

SECTION 4: WATER QUALITY ACTIVITIES

Introduction

It is unquestionable that water is one of the most vital resources in the world. According to the Global 2000 Report to the President, "In modern societies water is used for human consumption and for transport of wastes, for sanitation in general, for production of energy, for all types of industrial production, for agricultural production, for transportation, and for recreation", and thus is an integral part of life. (page 137) As population increases and countries develop, the demand for water will increase and water quality will suffer. The effect of the projected economic growth could have two possible effects on water quality (or a combination): increased release of pollutants into the environment or increased costs of keeping this pollution out of the environment. The passage of the Clean Water Act (and all the programs initiated under it) and the Safe Drinking Water Act show steps in the direction of the latter choise in the United States. These acts recognize the value of our water resources, and have been effective in identifying, and in many cases, solving New England and Connecticut's water quality problems.

Summary of EPA's Regional Administrator's Annual Report on Environmental Quality in New England, December 1980

The July 1, 1983 goal of the Clean Water Act is to restore the nation's waters to a "swimmable/fishable" state (Class B or better). Emphasis must also be placed on the preservation of already good quality waters in addition to restoration of polluted ones.

In New England as of January 1980, 61 percent of major stream areas met the swimmable/fishable standards, an 11 percent increase from 1976. It is projected that only 82 percent of the region's major streams will meet this goal by 1983. In Connecticut, of the 861 freshwater stream miles studied, 65 percent (556) met the swimmable/fishable goals (an increase of 9 percent since 1976 and 5 percent since 1978). However, if all the Connecticut streams were assessed, 93 percent would meet Class B standards. By 1983, projections indicate that 83 percent of major stream miles will meet these standards. (For a breakdown of the water quality of particular Connecticut rivers, see Table 1)

Combined sewer overflow is the major contributor to water quality standards violations in New England, the responsibility lying with inadequately treated municipal and industrial discharges. These point-source problems are addressed in the Clean Water Act under the municipal Construction Grants Program and the Nation Pollutant Discharge Elimination System in order to control industrial and municipal discharges and improve water quality. In Connecticut, combined sewer overflows and the need for advanced waste treatment in some areas accounts for the water quality violations especially in the Connecticut River, Thames River and the Bridgeport and New Haven coastal waters.

Clean Lakes

Many New England lakes are threatened by eutrophication caused by pollutants (especially nutrients, i.e. phosphorus and nitrogen) from municipal waste water treatment plants and non-point sources. This

excessive growth of aquatic weeds poses potential problems for recreation in 100 of Connecticut's major lakes. Federal participation in lake rehabilitation and preservation through partial funding was secured under the 1975 Clean Lakes Program (under the Clean Water Act). Early results of New England projects show promise.

In Connecticut, two lake restoration projects are underway at Bantam Lake and Lake Waramaug. Bantam Lake suffers from phytoplankton blooms and macrophyte beds which cover as much as 20 percent of the lake's surface area. Lake Waramaug suffers from eutrophication problems caused primarily by agricultural runnoff. The restoration of these lakes through various techniques is scheduled to be completed in 1983 and 1984 respectively.

Section 208 Water Quality Management Planning

Non-point sources of pollution have a greater impact on water quality as point-sources are brought under control. This problem is addressed in section 208 of the Clean Water Act which allows the Environmental Protection Agency to administer an areawide waste treatment management program. The "208" programs are helping to "preserve and protect the quality of the region's ground water resources" in New England.

Construction Grants

The Construction Grants program authorizes grants to cover 75 percent of the cost of wastewater treatment facilities. New and upgraded wastewater treatment plants have significantly improved water quality. An amendment to the Clean Water Act increased funding to 85 percent for innovative projects. Twenty-six communities have taken advantage of this alternative.

Conclusion

Much headway has been made in reaching the goals of the Clean Water Act but much remains to be done. Criticisms directed towards the program are being addressed by the Environmental Protection Agency which is developing a long-range strategy to meet the nation's water quality goals by 1990.

Drinking Water

The 1974 Safe Drinking Water Act ensures that public water supplies meet minimum public health standards. These regulations cover water supplies serving 95 percent of New England's population. Seventy-five percent of public suppliers use surface water sources, the remaining supply ground water to their customers. Drinking water standards establish maximum contaminal levels for such things as organic and inorganic chemicals, bacteria, turbity, and radio nuclides. This act also establishes a regulation that requires periodic monitoring of the water supplies.

Organic Contamination

Since many people are served by ground water sources, there is concern over the incidence of contaminants in ground water. The problem has become serious since the number of sites where contamination has been found has doubled in the past year. Another problem has arose with water contamination in communities where water is delivered through asbestos cement piping which has been found to contain high levels of a carcinogen called tetrachloroethylene. In Connecticut, 20 miles of such pipe exist. State Water Supply Agencies the Environmental Protection Agency and the utilities are in the process of solving this problem.

Protection of Underground Water Sources

The Underground Injection Control (UIC) program aims to protect underground drinking water sources by controlling subsurface disposal practices. Among the five classes of underground injection practices only Class IV, Hazardous waste disposal wells and, Class II miscellaneous injection wells such as multi-family septic systems, appear to be prevalent in New England. The Connecticut Department of Environmental Protection has received $41,500 from the Environmental Protection Agency for UIC programs in order to begin the process (i.e. identifying underground water sources and taking inventories of injection practices) of solving this problem.

Surface Impoundment Assessment

The Surface Impoundment Assessment (SIA) authorized under the Safe Drinking Water Act, evaluated current and potential impacts of waste dispoal impoundments in underground recharge areas of ground water supplies. In Connecticut, 382 sites and 1020 impoundments were located. The individual SIA reports will be used in two national reports relating to potential ground water contamination and the possibilities for new regulation to control this disposal practice.

Water Conservation

As water demands rise and water contamination becomes more frequent, water conservation becomes more and more important. Conservation can result in reduced costs of water and wastewater systems. Many Environmental Protection Agency programs such as the Construction Grants, the Water Quality Management Program and Environmental Impact Statement preparation process consider the water conservation issue.

Interstate Highways versus Water Quality

Since New England has high quality drinking water, it is important to protect its sources from any type of contamination including that which could result from highway construction, use and secondary growth in the highway vicinity. In the last year in Massachusetts, the Environmental Protection Agency ordered a halt to the construction of the I-190 highway which crosses the Wachusett Reservoir. Similarly, the proposed route of I-84 through Connecticut and Rhode Island is still under review because of concerns of its potential impact on the scituate reservoir in Rhode Island.

TABLE I: CONNECTICUT SUMMARY OF WATER QUALITY 1980

*Water quality problems
1. Harmful substances;
2. Physical modification (suspended solids, temp., etc.);
3. Eutrophication potential;
4. Salinity, acidity, alkalinity;
5. Oxygen depletion;
6. Health hazards - (coliform)

Major Water Areas (including mainstem & major tributaries)	Total Miles Assessed	Miles now meeting class B (fishable swimmable) standards or better	Miles expected to be Class B or better by 1983	Miles not meeting state water quality standards	*Water quality problems	Source of Water Quality Problems M= Municipal I= Industrial CS= Combined Sewers NPS= Nonpoint Source
Connecticut River	148	67	102	81	2,6	M, I, CS, NPS
Park River	12	2	7	10	2,5,6	CS, NPS
Farmington River	66	62	66	4	----	M
Pequabuck River	15	3	15	12	2,5,6	M, I, NPS
Housatonic River	190	118	143	72	1,3,6	M, I, CS, NPS
Naugatuck River	35	20	20	15	1,2,5,6	M, I, CS, NPS
Thames River	57	33	50	24	2,5,6	M, I, CS, NPS
Willimantic River	27	27	27	0	----	M, NPS
French River	6	0	0	6	2,5,6	M, I
Quinebaug River	42	26	26	16	2,5,6	M, I, NPS
Shetucket River	18	15	18	3	2,6	M, NPS
Central CT. Coastal	85	81	85	4	2,5,6	M, I, NPS
Quinnipiac River	34	7	30	27	2,5,6	M, I, NPS
Western CT. Coastal	93	71	93	22	5,6	NPS
Eastern CT. Coastal	23	21	23	2	6	NPS
Pawcatuck River	10	3	10	7	2,5,6	M, I
TOTAL MILES	861	556	715	305		
% Of Miles Assessed		65%	83%	35%		

TABLE 2: DRINKING WATER SUPPLIES CONTAMINATED BY ORGANIC CHEMICALS

Connecticut	Primary Contaminant	Probable Source
Beacon Falls (private wells	acetone, toluene 1,1,1, trichloroethane	dump site
Bristol	under investigation	unknown
Brookfield (11 private wells)	benzene	underground gasoline tank leak
Canton (7 private & non-community wells)	trichloroethylene 1,1,1, trichloroethane	
Cheshire (N. Cheshire well #4)	trichloroethylene	unknown
Colchester (well #3)	benzene	underground gasoline tank leak
Colebrook (non-community supply)	benzene	underground gasoline tank leak
Darien (Rewak municipal well)	1,1,1 trichloroethane trichloroethylene	manufacturing company
Danbury (Lakeview MHP)	trichloroethylene 1,1,1 trichloroethane	illegal dump site
Derby (10 private wells)		landfill
Durham	under investigation	unknown
East Granby (non-community supply)	trichloroethylene 1,1,1 trichloroethane	discharge from floor drains
East Haddam	under investigation	unknown
Farmington Industrial Part (well # 1,2,3,4)	1,1,1 trichloroethane trichloroethylene tetrachloroethylene	under investigation - industrial discharge in vicinity
Manchester (Progress Road well)	1,1,1 trichloroethane	under investigation
New Haven (N. Cheshire well field)	trichloroethylene	historic dumping
Norwalk (4 public wells- W. Smith well field)	trichloroethylene	industrial waste discharge
Plainfield (Union W.W. #1	trichloroethylene	waste discharge from aircraft firm
Kaman well #1)	1,1,1 trichloroethane	
Plainville (Johnson well #3)	trichloroethylene 1,1,1 trichloroethane	industrial waste discharge
Prospect (well #7)	1,1,1 trichloroethane	under investigation
South Windham - Windham	tetrachloroethylene	old town dump
(15 private wells, 2 non-community wells, 1 community well)	1,1,1 trichloroethane	old factory site
Southington (wells #4,5,6)	1,1,1, trichloroethane	industrial waste discharge
Southington		
Pratt and Whitney wells #2,7	1,1,1 trichloroethane	under investigation
Thomaston (Reynolds Bridge well)	tetrachloroethylene	chemical storage tank leak
Tolland (private wells)	various chemical compounds	landfill
Wallingford (well #3)	1,1,1 trichloroethane	under investigation
Waterford (private wells)	benzene	underground gasoline tank leak
Woodbury (well#2)	trichloroethylene 1,1,1 trichloroethane	industrial waste discharge

Part 2. Hazardous Materials & Solid Wastes

SECTION 1: THE CHANGE IN EMPHASIS FROM SOLID TO HAZARDOUS WASTE MANAGEMENT

The recent concern at the federal and state levels over the problem of hazardous waste has led to several changes in emphasis in the area of waste management. Attention has shifted to hazardous waste from solid waste as it has become a topic of extensive media coverage, new legislation and major public concern. At the federal level funding is being supplied for hazardous waste management programs under subtitle C of RCRA, and at the state level a Hazardous Materials Management Unit (HMM) was created within the DEP.

Unfortunately this has led to problems in the area of solid waste management. Funding under subtitle D of RCRA is being decreased by 20 percent per year based on fiscal year 1978. This means that by 1983 no federal funding will be available for solid waste programs. The problem is compounded by the fact that creating the Hazardous Materials Management Unit (HMM) separate from the Solid Waste Management Unit (SWMU) has also separated the funding. The state will therefore have to begin assuming support of the SWMU or suffur its loss.

Last year's federal funding of the SWMU was expected to be $140,000., however, additional funds amounting to $56,000. were allotted bringing the total to $196,000. Following inquiries from the SWMU it does not appear that additional funding will be available next year which would drop federal funding to $112,000. This comes at a time when an Open Dump Inventory must be conducted and a new solid waste management plan completed and adopted by February 1981. These activities require staffing and therefore money. SWMU previously requested to have four positions taken over by the state and only two were finally approved.

To compensate for the loss of federal funds, the unit has looked at alternative sources of funding, ("Alternative Funding Sources", Leslie Bieber, Environmental Analyst Appendix D, Draft Solid Waste Management Plan"). Several of the options are:

1. Use of the approximately $4000 raised yearly by the Office Paper Recycling Program Sponsored by SWMU. An increase in this amount is expected as more state buildings participate. The revenues presently go into the General Fund and special legislation would be required to alter this.

2. Taxes collected under Connecticut's Litter Control and Recycling Act are expected to generate approximately two million dollars each year. If the SWMU administered this Act, some salary and operating costs could be covered by the tax revenues. However, many businesses feel this tax to be unfair and a repeal is possible. To date no revenue has been realized from this tax.

3. The new Office of Litter Control could be included in the SWMU to avoid duplication of efforts. This would suppy additional funding to the unit and experienced staff to the Litter Control Office. The office currently has only a director and no additional staff. It would seem that the combination of experience and support gained by joining the units, would greatly improve and accelerate the litter control effort. The Council feels that this would be in the best interest of the programs involved through the most efficient use of limited staff and resources.

4. The possibility also exists for SWMU staff to assist other units, with a portion of their salary paid by that unit. This particularly applies to HMM where experience with landfill operation and ground water monitoring may be useful. In fact in some states both solid waste management and hazardous waste management are contained in one unit eliminating any duplication of effort and allowing sharing of funding.

5. The Environmental Protection Agency has suggested that states initiate user charges or fees to offset the loss of federal funds. Unfortunately Connecticut has few large private disposal facilities and the total number of facilities in the state is declining. The fees to supply the necessary funding would therefore be quite high. Several other states also use fines for violation of state laws which could provide a supplement to funds here. A facility could be charged a fee on a basis of tons of waste disposed, which encourages recycling, or on a per capita basis. Charging by the ton would require installation of scales and the setting up of a record keeping system. Per capita charges lack the recycling incentive and any of the methods mentioned could add administrative costs to the SWMU program.

Next year the SWMU will receive $84,000 less in federal dollars and one or a number of the proposed alternatives could help to make up the deficit, none of these are definite, however. With the impending landfill shortage and need to develop the resource recovery program as well as responsibilities to be carried out under RCRA, the Council recognizes the importance of a strong SWMU. We therefore recommend that alternative funding sources be carefully looked at and necessary changes made to assure such funds for SWMU. We also recommend that "staff sharing" be considered both to support SWMU and to eliminate duplication of efforts among interrelated units.

SECTION 2: HAZARDOUS MATERIALS MANAGEMENT UNIT

The issue of Hazardous wast management continues to be of importance on both a national and local level. The threat to human health and the environment seems to grow as more and more substances are found to be hazardous and as a greater number of potentially hazardous sites are discovered. Improper treatment, storage, transportation or disposal may lead to a range of effects from increased cancer and respiratory disease rates to ground water contamination and vegetation or wildlife kills.

In response to the dangers posed, the Congress passed the Resource Conservation and Recovery Act (RCRA) 1976 Subtitle C of the Act deals with hazardous waste management and provides a guide for state programs. This includes identification and listing of hazardous waste, standards applicable to generators and transporters of hazardous waste and standards applicable to operators of hazardous waste treatment, storage and disposal facilities.

Under Section 311 of the Clean Water Act a special revolving fund of $35 million was also set up to handle spill clean-up. Unfortunately the cost of ongoing clean-ups such as operations at Love Canal and a kerosene spill in northern Virginia could exceed $30 million while only 3.2 million remains in the fund. Passage of "Superfund" legislation, supported mainly from fees on industry could help fill this gap. Even so, the EPA estimates that there exists approximately 30,000 potentially dangerous dump sites, several hundred of which pose an immediate threat to the public. In view of the magnitude of the problem, it seems that the state and localities must play an important role in hazardous waste management.

In November 1978 the Hazardous Materials Management Unit (HMM) was formed within the DEP. The unit is currently involved in management on a case by case basis as well as carrying out Federal and State requirements. Hazardous Waste Legislation, PA 79-605, effective July 3, 1979 requires the Commissioner to establish programs to carry out the intent of subtitle C of RCRA. While the EPA regulations will not be available until October, HMM has gone ahead to develop a draft program to be completed in September. The proposal is expected to go to public hearing sometime in January with final regulations complete in late January or early February.

The manifest system, as called for in RCRA is a means of identifying the quantity, composition and the origin, routing and destination of hazardous waste from the point of generation to the point of disposal, treatment, or storage. This has already been designed and will be included in the state plan.

The six New England states have agreed to use a uniform recording system. Connectiuct's manifest will be automated as HMM estimates that approximately 600 transactions will take place each day. This was based on figures of 4000 to 5000 potential hazardous waste generators, 2000 to 3000 of which are considered active generators transporting waste on a weekly or daily basis. Advantages of using a computerized system include ease of operation, less staff time needed and automatic notification if waste did not reach its destination on schedule. Through the manifest system hazardous waste will be traced "cradle to grave" to prevent accidental or illegal spills and assure safe and proper disposal.

An inventory of potential hazardous waste sites is currently in process. Questionnaires sent to towns and the Health Department, and DEP files provided the Unit with a pre-inventory checklist. This resulted in 3072 locations to be investigated. The inventory will provide several useful functions besides fulfilling the legislative requirement. It facilitates the location of areas requiring permits under the proposed legislation, assures enfcrcement of current violations and enables discovery of potential hazards.

One of the most important and difficult tasks in hazardous waste management is disposal. As more wastes are classified as hazardous and other wastes are removed from unsafe locations more disposal sites will be necessary. The problem of siting appropriate and secure landfills for waste is growing. Much of the land that is suitable is also prime development land and furthermore people tend to have a strong attitude against siting a facility in their town.

The fact remains however that while Connecticut has three waste treatment firms, there are no secure chemical landfills in the state or all of New England. To help alleviate the problem PA 80-427 was passed calling for the formation of a hazardous waste siting board. An interim study committee is currently debating the composition of the board and will report back to the General Assembly not later than January 1, 1981. As the legislation stands, the board will be responsible for approval of sites, issuing "certificates of public safety and necessity" for proposed hazardous waste facilities and it will have the power to override municiple objections with a 2/3 vote. The act as it is also offers a financial incentive of five cents per gallon or $3.50 per cubic yard of waste disposed of in a given facility in a town. This may still appear unfavorable to towns where facilities are located, but it is essential for the ultimate benefit of everyone.

The siting issue helps to demonstrate how important regional cooperation is, especially in New England where suitable sites are few and no present landfill facilities exist. Presently approximately 4,500 businesses, employing more than 300,000 workers and representing over $21.9 billion of the annual manufacturing sales in New England generate over 100 million gallons of hazardous waste per year. The problem of site selection and liability is currently being looked at by the hazardous waste advisory group of NERCOM (New England Regional Commission). Cooperation in terms of information sharing, development of regional hazardous waste facilities, and use of a uniform manifest system will help to assure a safe and more rational approach to this pressing problem.

SECTION 3: SOLID WASTE MANAGEMENT

In Connecticut the average person generates .7 tons of waste per year or four pounds a day. Almost all of this 2¼ million tons of municipal solid waste produced in the state each year is disposed of at land disposal areas. Furthermore EPA estimates show that solid waste generation will continue to increase by a small percentage in coming years. This will result in generation of 1,300,000 tons of solid waste from 60 municipalities between 1980 and 1983 for which no tipping area has yet been selected.

It is clear from these figures and present problems that Connecticut cannot continue to dump all of its waste on the land. The state is geologically unsuitable for waste disposal and sites which would be appropriate for a landfill are also desirable for more acceptable forms of development.

The critical landfill shortage predicted for 1983 has been postponed through various means, however, the large regional landfills now in operation are expected to reach capacity in 1986 or 1987. An alternative to this practice must be found.

In an effort to further delay a landfill crisis many existing sites have received horizontal or vertical permitted extensions. Public Act 78-67 also requires that a "reasonable alternative facility" must be found before closing a landfill site. While these measures have temporarily put off the crisis, PA 78-67 has caused some additional problems and requires clarification.

The state is charged with finding alternative disposal sites while the locality has the right to regulate land usage through zoning. The question arises as to what a "reasonable alternative" is. If the state proposed an alternative site within a town, and the town chose to prevent a landfill through zoning, could the original site in question be closed? Or, should higher cost be sufficient to consider an alternative unreasonable? Without clarification or alteration PA 78-67 may be allowing unsafe, environmentally harmful sites to remain in operation while an alternative site is found. This seems to directly contradict the intent of the Resource Conservation and Recovery Act (RCRA) which calls for the closing of unsafe landfills failing to meet certain standards. If the closing of these sites is put off now, the costs both economically and environmentally will be even greater in the future.

In order to address the problems of increasing waste generation and decreasing landfill capacity, the Solid Waste Management Unit (SWMU) has formulated the "Connecticut Solid Waste Management Plan" having two major goals:

1. Reduce the volume of municipal solid waste that must be disposed of to the land.

2. Assure the continued availability of landfill space.

Four approaches are contained in the plan: source reduction, source separation, waste processing, and disposal. Source reduction involves a cut down in the amount of throw away products produced. The Bottle Bill and Litter Control Bill are two measures the state has already taken to this effect, but much more can be accomplished on the local and individual level. Efforts should be made to assist localities in setting up programs and alerting individuals to the seriousness of the problem. Another method of removing items from the waste stream is through source seperation. This involves dividing materials into useful categories before collection. Besides reducing the amount of waste to be processed, recycling of useful materials obtained through separation also saves valuable resources. Both of these approaches benefit the community involved by saving on transportation costs and disposal fees. In this case economic incentives can be used to promote environmental goals. Public awareness and education are important to the success of this entire plan.

Waste processing involves two strategies, reducing the volume of solid waste to be disposed of and resource recovery of energy and materials. Processing one ton of refuse results in heat production equivalent to that of one barrel of oil as well as preserving valuable landfill capacity. With shrinking landfill options and growing energy needs, waste processing plays an important role in the solid waste management plan.

Even with incorporation of source reduction, source separation and waste processing, some waste residue will remain. Landfill space will therefore always be necessary and efforts must be made now to assure its availability for disposal of these residues or in the event of a breakdown in processing equipment.

While municipalities are still responsible for disposing of waste produced within their borders and still have control over landfill locations through zoning, the state plan would best be served through a regional approach. Changes in legislation may be necessary to accommodate this new approach. A regional emphasis would allow for selection of the safest, most appropriate landfill sites and assure that resource recovery facilities are located where they are needed, and proximal to landfill operations. The Connecticut Resource Recovery Authority (CRRA) presently has plans for several resource recovery facilities based on regional need.

The Bridgeport plant is now fully constructed and receiving waste for testing purposes. Unfortunately this project has experienced a number of delays and alterations in plans as well as being plagued by an air pollution problem. Two other major plants, the Mid-Connecticut and South-Central, are planned to be completed by 1985. Two small scale operations in the Housatonic Valley and Windham Area are expected to be working by 1983 and 1981 respectively. Several other areas are also being considered for small scale facilities. According to the plan, by 1985 between 70 and 80 percent of the state's municipal solidwaste will undergo resource recovery operations. This is certainly an admirable goal. However based on past experience and delays with the Bridgeport plant, a more realistic timetable may be necessary.

In order to promote the goals of the State Solid Waste Management Plan and assure that solid waste is disposed of in an environmentally sound manner several steps must be taken. The promotion of source separation and recycling programs should be actively encouraged through state assistance to localities, especially those facing a landfill shortage. These programs require little effort, once started, when compared to the benefits gained. The SWMU also needs a stronger enforcement mechanism. The present system of notices, orders and appeals fails to promptly address serious violations. An incentive such as a fine should be available to speed compliance and help alleviate the cost to clean up a damaged environment. In order to prevent unsafe operations from occurring, funding should be assured for monitoring and siting programs.

The issue of solid waste management will be of great importance in the coming years as the transition is made from traditional land disposal to resource recovery. Funding, staffing and other forms of support will be necessary for Connecticut to meet the serious challenge it faces.

Part 3:

Environment/ Economics

SECTION 1: THE NEED FOR ECONOMICS IN ENVIRONMENTAL LEGISLATION

Economics and environmental protection are often perceived as conflicting approaches to many issues. Similarly, many contemporary problems are characterized in terms of "economics versus the environment". However, economics and ecology derive from the same Greek root "oikos", meaning household or home. Economics and environmental quality are actually interwoven.

The following section, using the Federal Water Pollution Control Act Amendments of 1972 and 1977, will try to illustrate this topic. As budget priorities become harder to secure we must be prepared to offer convincing arguements for maintaining our environmental programs. More and more this will have to be done with discussion in the economic field.

SECTION 2: THE FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972 and 1977

In the past the goal of environmental quality has been considered an economic conflict. This is not necessarily a result of our policies but rather the result of narrow definitions. An economic analysis blended with an environmental policy can produce an effective combination of goals.

Some of the conflicts that arose between economics and environment can be illustrated by the Federal Water Pollution Control Act Amendments. The FWPCA amendments of 1972 and 1977 establish the goal of eliminating all discharge of pollutants into navigable waters by 1985. The 1977 amendments outline, as an interim goal, that a level of water quality which provides for recreation in and on the water and for protection of aquatic life be attained by 1985 wherever attainable. This is called the "fishable swimmable goal".

An economic analysis reveals that this environmental legislation has three important conflicts with economic theory. First, by mandating the elimination of all discharge of pollutants into navigable waters it ignores the law of increasing marginal cost. This law states that the cost of producing an extra unit of a good, such as water quality, increases as more of that good is produced. The first units of pollution can be eliminated easily by a firm and at little cost. As more and more units of pollution are eliminated, more complex and costly methods must be implemented. Also, in a polluted environment, society will place a very high value or eliminating the first few units of pollution.

At this level there may be health effects which are very costly. As pollution is eliminated, however, society values the elimination of the last few units less. The effects of pollution at the lower levels may not be readily known, leading to less support for their removal.

It is important to note that cost, as used here, implies not simply the money cost to the firm but rather the opportunity cost to society. The more resources that are devoted to the elimination of water pollution, for instance, the fewer there are left available for society's other needs such as health care, food production, or the elimination of other types of pollution.

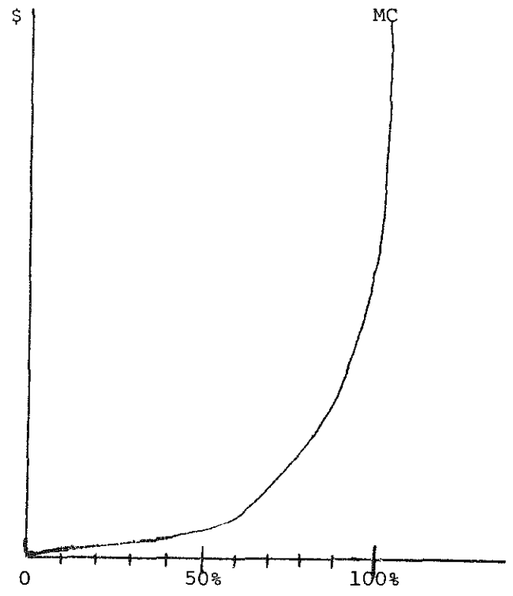
Another way of discussing the concept of increasing marginal cost of water quality is in terms of the usefulness of these resources. In the early stages of pollution abatement those resources which are least valuable to other uses are consumed first. As society consumes more resources in the pursuit of water quality we must turn to resources which may be valuable in other uses and this is reflected in the marginal or incremental cost of eliminating additional units of pollution.

Figure 1 and Table 1 illustrate the increasing marginal cost of water quality. In Figure 2 it becomes obvious that the goal of eliminating all discharge is economically undesirable. At "A" amount of pollution abatement, society desires more pollution abatement because the marginal cost of more water quality is less than the marginal benefits received from eliminating more pollution. At point "B", which could represent the "no discharge" goal, the marginal benefits from the last few units of pollution abatement are well below the marginal costs. In this illustration the "correct" level of pollution abatement is midway between "A" and "B", at point "E". At this point, less pollution abatement will be too little because water quality benefits could be increased at a lower cost. Beyond point "E", the costs of more water quality are greater than the benefits that would be derived form that increase. Unfortunately the ability of society to determine these costs is somewhat suspect. This leads to an area of much debate.

Alternately, the table shows that elimination of the last one percent of pollution demands more of society's resources than it cost to remove the first 99 percent. It is important to note here that the measurement of social benefits are much harder to quantify than the social costs. The cost, ideally, is simply the amount paid out in pollution control measures. This amount should represent the opportunity cost to society. On the other hand it is much more difficult to measure benefits of pollution control, which include health, recreational, and aesthetic factors.

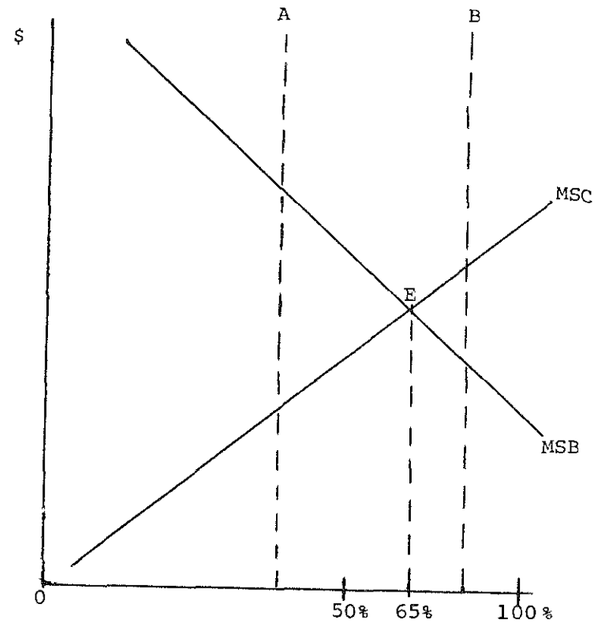
By specifying the means by which firms must reduce and finally eliminate their discharge, the law overrides the cost-minimizing abilities of the firm. It may be less costly for a firm to reduce its discharge by changing some of its in-plant processes but it is still required to have the "best available technology economically achievable" (BAT) by 1983. This emphasis on "end of the pipe" technology as a means of pollution control is far more costly than is necessary to achieve a given level of water quality.

FIGURE 1
INCREASING MARGINAL
COST OF WATER QUALITY



WATER QUALITY---→
(Amount of Pollution Eliminated)

FIGURE 2
OPTIMUM AMOUNT OF WATER
QUALITY



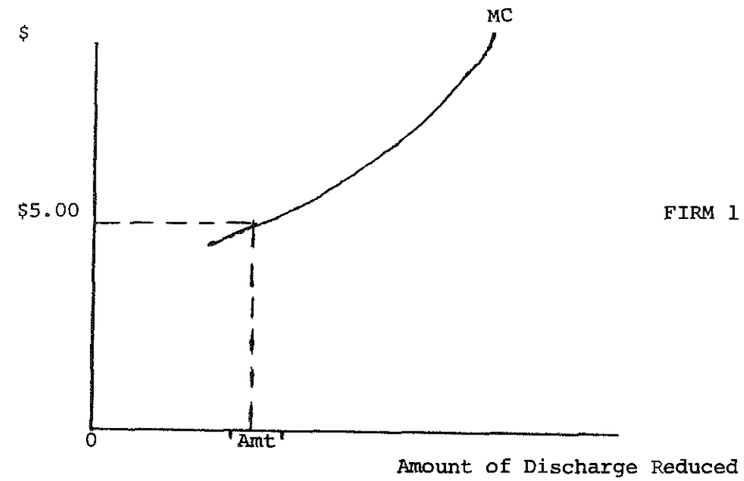
WATER QUALITY ---→
(Amount of Pollution Eliminated)

TABLE 1

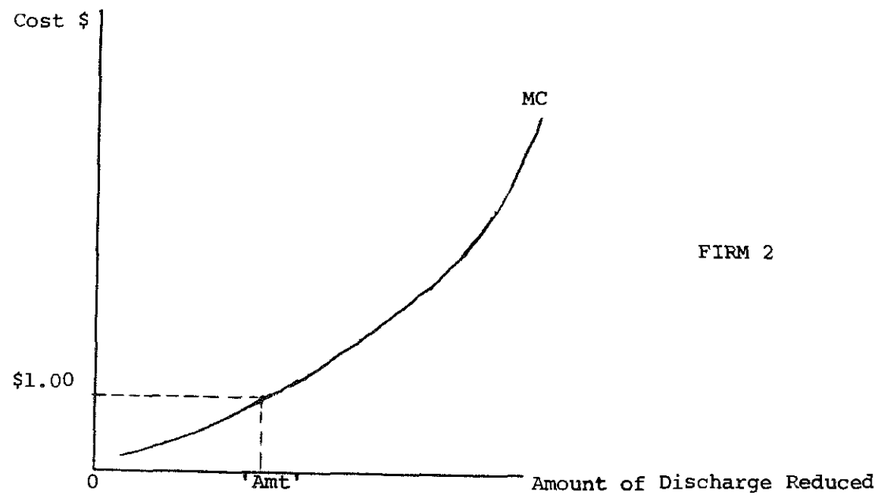
% of removal	(billions $) total cost	incremental cost
100%	316.5	197.7
95-99%	118.8	58.0
85-90%	60.8	

COSTS OF VARIOUS LEVELS OF WATER POLLUTION
CONTROL

FIGURE 3



FIRM 1



FIRM 2

DIFFERING COSTS OF POLLUTION CONTROL AMONG FIRMS

Finally, the "across the board" emphasis on discharge reduction again leads to more resources being devoted to pollution abatement than is necessary. The cost structures of industries are different, as are the cost structures of firms within industries. By applying the same pollution reduction standards to all dischargers, the FWPCA legislation overlooks the fact that "low cost" firms can reduce more emissions at a lower opportunity cost to society than other "high cost" firms.

The means of achieving water quality under the present law is illustrated in Figure 3. Firm 1 has higher marginal costs of pollution control than Firm 2. Thus, it will cost Firm 1 five dollars, in this case to eliminate a given amount of pollution. The cost of eliminating the same amount of pollution is only one dollar for Firm 2. By inducing Firm 2 to eliminate a greater percentage of discharge and decreasing the percentage of discharge reduced by Firm 1, the same amount of pollution could be eliminated at a much lower cost. How this can be achieved is discussed in "Economic Incentives".

SECTION 3: THE EFFICIENT ALLOCATION OF RESOURCES AND MAXIMUM SOCIAL WELFARE

In the perfectly competitive market place, which is used by economists to illustrate the "ideal" market structure, the economy naturally tends toward a state of maximum social welfare. There is not one individual point but a line of points which reflect various allocations of the economy's resources. Any of these points would reflect the state of "efficient" allocation of resources in the economy; meaning society is getting the greatest benefit from its resources.

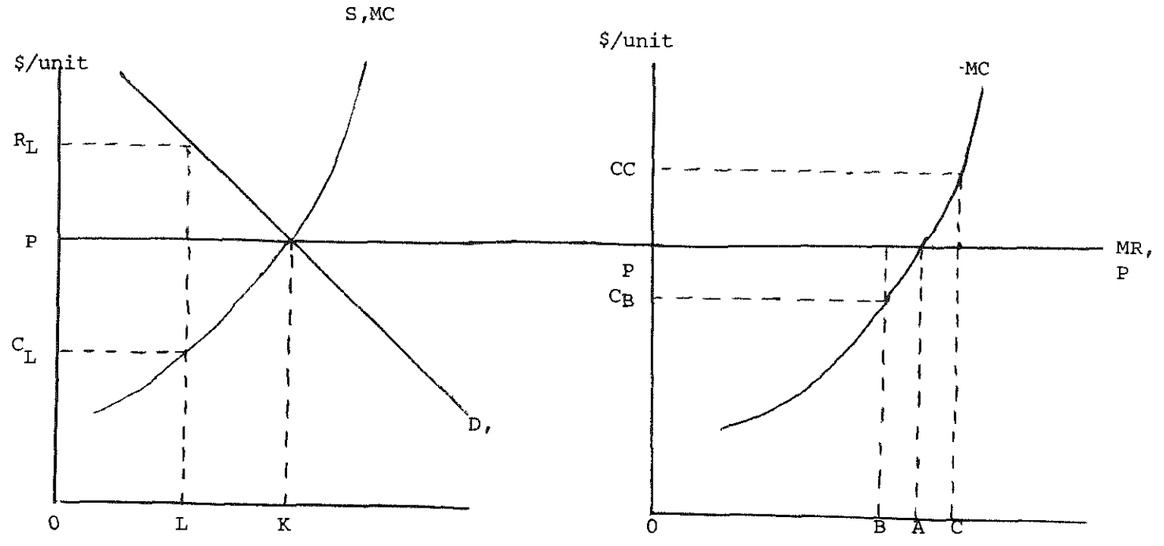
In the ideal economic situation of perfect competition, we assume that each firm in an industry is small enough not to be able to influence the price of the good it produces. In other words, if the firm expands production, the price of the good will not necessarily fall. The overall increase in the supply of that good would be miniscule, and thus price, as determined by supply and demand, would remain stable. Figure 4 illustrates how, under these conditions, each firm will automatically produce the socially optimum amount of the good. It is the profit-maximizing objective of the firm which causes it to produce at this optimum level. (See explanation with Figure 4.)

SECTION 4: EXTERNALITIES AND THE DIFFERENCE BETWEEN SOCIAL & PRIVATE COSTS

One assumption that is implicit in any discussion of the efficient operation of a market is that <u>all</u> costs are reflected in the cost curves of the firm and the industry. Only in this way is the socially optimum level of production achieved. As discussed previously, these costs should reflect the opportunity cost of benefits foregone from other areas of production. This must include the opportunity cost of sacrificing environmental quality if the environment is degraded by that production. Because the environment is a free public good, however, the use of this resource is not incorporated into the firm's cost curves. The firm bases its production decisions on private costs, which should reflect society's opportunity costs through the pricing system.

FIGURE 4

PROFIT - MAXIMIZING BEHAVIOR OR A FIRM AND INDUSTRY AND THE ALLOCATION OF RESOURCES



The firm, shown in the right graph, chooses the level of production "A" given the price "P" and the marginal cost curve shown. At this point the firm is profit-maximizing. If it were at a level of production "B" the firm would gain more in revenue from producing more units than it would cost to produce those units. This is shown on the graph by the difference between the cost of producing extra units at this level, "C_B", and the revenue received from extra units, "P". Consequently, the firm would expand production in order to realize more profits. If it were at a level of production "C", the cost of producing that unit would be greater than the revenue received from its production, "P", so the firm would decrease production to maximize profits.

The sum of all the firms' marginal cost curves are added to arrive at a cost curve for the industry. The same rational works here to reach the optimum output of the industry's product; optimum from the standpoint of both the industry and society. At level of production "K", society is willing to pay exactly what industry must charge for that amount of the good. If it were at level of production "L", the revenue, "R_L", received from expanding production would be greater than the cost, "C_L", of producing the extra units, so output will increase.

When certain costs are not paid by the firm, such as the cost of a deteriorated environment, there is a divergence between social costs and private costs. These external costs, or externalities, are paid by society in the end regardless of whether they are accounted for or not. In the case of a firm that does not account for the costs of environmental degradation, sociey incurs those costs as health effects, deteriorated aesthetics, etc.

SECTION 5: THE OVER PRODUCTION OF "DIRTY" GOODS

When external costs are not internalized, the environment is degraded to a greater extent than society wants to tolerate. This is because when social costs are greater than private costs, as when the cost of using the environment for polluiton disposal is not accounted for, too much of "pollution-prone" goods are produced. Figure 5 illustrates the "over production" of a good which pollutes the environment by its production processes.

In the case of this firm certain pollutants are emitted into the environment as a result of producing the good. The firm is not charged for using the environment as a disposal facility so it does not count this as a cost of production. From society's perspective, however, the loss of environmental quality is indeed a cost, and when this cost is considered, the actual cost to society of producing the good is higher than the private costs that the firm incurs. The higher social costs of production are shown on the same graph as MSC, or marginal social cost. The lower level of production Q_S is chosen as most profitable for the firm when all costs are considered (including the cost of environmental degradation). The amount of the good which society actually wants this firm to produce is thus lower when social costs are considered.

For the industry as a whole, (shown on the left of Figure 5) the marginal social cost curve (which also represents the supply curve) reflects higher social costs than the industry recognizes as private costs. When the costs of environmental degradation are accounted for within the industry, the price rises from P_P to P_S reflecting the cost of environmental degradation. At this higher price, less of the good is demanded. The ultimate goal of internalizing these costs is not simply that "business should pay", but that the market should be returned to efficient operation with the socially correct mix of goods and services. In the example just discussed, it costs society more to clean up the pollution that resulted from the extra production than it costs in terms of reduced production of the pollution causing good. Before externalities are internalized, the industry and economy are in a state of "market failure". The internalization of all costs would correct that failure.

SECTION 6: EXTERNALITIES, PROPERTY RIGHTS, AND PUBLIC GOODS

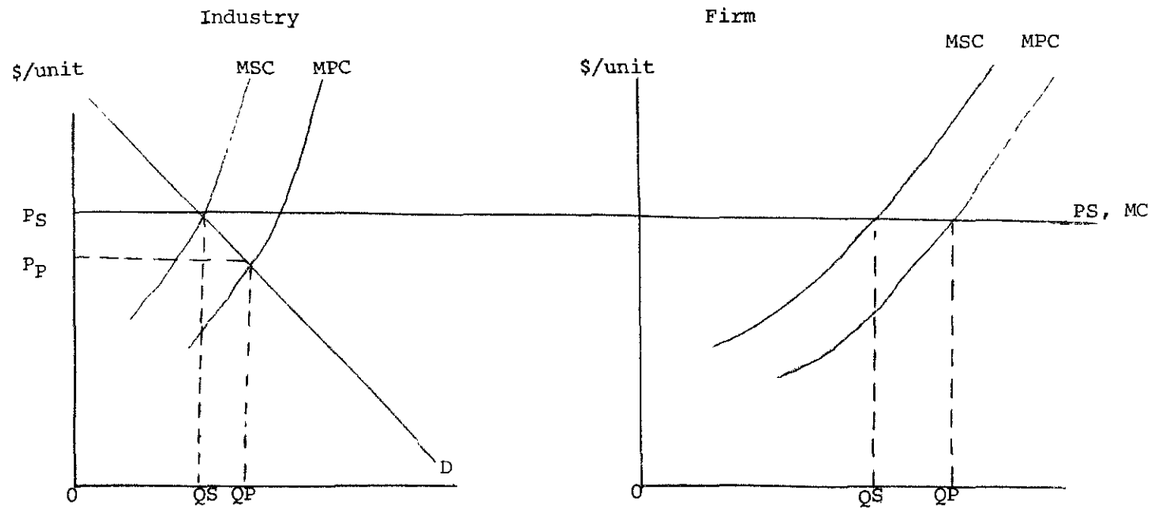
Externalities result from the lack of property rights; in this example property rights to environmental resources. When a firm uses natural resources like oil, labor, or capital in its production processes, it must normally pay a price to the owners of these resources for their use. Then, through the pricing system, an efficient allocation is arrived at.

FIGURE 5

OPTIMIZING PRODUCTION AND THE

ALLOCATION OF RESOURCES WITH SOCIAL

COSTS INCLUDED



The graphs above are identical to Figure 4 except that the social cost curves (MSC) are shown also. Considering the right graph first, the price is given to the firm, as dictated by market forces. As explained under Figure 4, the firm will maximize its profit by producing at the point where the marginal cost of producing an extra unit of production is equal to the price, or extra revenue generated by the production of that extra unit. When private costs are considered, the level of production is "Q_P". However, in this case we assume there is an external cost involved with the production of this good (air pollution, water pollution, etc.). And in order to arrive at the optimum level of output of the product (the amount of it society really wants when all things are considered) these costs must be incorporated in the production decisions of the firm. This is shown as the marginal social cost curve (MSC) and the level of production associated is lower.

In the graph to the left we see how a polluting industry as a whole reacts to cost-internalization; not only is the level of production lower, the price eventually becomes higher, reflecting the true social cost of that good.

A price must be paid for these resources because they are private property, and as such they are subject to exclusion. For instance, if two firms want a worker's labor and the worker chooses to work for one firm, he excludes the other from its use. The environment is unlike most private property in two ways. First it is not owned by any one person so it cannot be allocated to the most efficient user. Everyone can use the environment indiscriminately. Second, it is a public good, like national defense, and it is difficult to exclude anyone from using it and thus no price is paid for its use. The public at large must then pay the cost of its use and because each firm does not pay according to how much it uses, it tends to be "over-used". When a free public good like the environment is not stressed, the economy can funciton despite this market imperfection. With population increases and pollution producing technology, however, the environment has become stressed and alternate modes of allocation must be implemented in order to prevent permanent damage. How this can be achieved is discussed later in this report.

That property rights lead to an efficient allocation of resources in the perfectly competitive market is certainly not a case for giving over what we all think of as common resources to private ownership. Rather, the reaffirmation that the public, through its government, owns the resources is what is needed. Environmental resources, because of their nature as a public good, would not necessarily be efficiently allocated under private ownership. This would be analagous to leaving the production of national defense to the private market. Because it is a public good, none would be produced. (See graphs next page.)

SECTION 7: ECONOMIC INCENTIVES FOR A CLEAN ENVIRONMENT

In the previous section we saw that environmental degradation is often the result of the failure of the free market to deal with the environment as a resource. This occurs because of the lack of optimum distribution of that resource between competing uses. We have also seen, in an analysis of the federal Water Pollution Control Act, an example of how some governmental solutions to pollution problems can be more costly than necessary to make up for abuse and often do not succeedin meeting their goals and deadlines. The problem then is how do we get the distributive forces of our economy to allocate the desired amount of our environmental resources to uses such as preservation, recreation, aesthetics, and the desired amount to industrial and other uses.

One suggested solution is that property rights over environmental resources must be enforced. In this way, the resources can be bought and sold, and thus allocated to various uses on the basis of each use's value to society. The costs and benefits of using the environment for every use will thus be internalized by the decision-making process for the allocation of environmental resources. The best way economists have devised to force the internalization of external costs which are pollution is called the effluent charge.

SECTION 8: EFFLUENT CHARGES

In 1965, economists at the Rand Corporation introduced a proposal for a "smog tax". Under this tax, cars would be subject to testing and assigned a smog rating. When the car owner purchased

gas, a tax would be paid per gallon depending on the smog rating of the car. This tax is economically desirable because the cost of operating a polluting car would more nealy reflect the true social costs of operating it. We have already determined that there is a cost associated with pollution from a car in terms of health effects, aesthetics, and environmental degradation. With the tax however, society as a whole has exerted its property right over the common resources of air, and required the users of the air to pay for its use. This has the effect of allocating the use of clean air in the same way as other scarce resources are allocated.

This approach is also less costly than, for instance, requiring every car to attach "end-of-the-pipe" pollution control devices. There may be other less costly means for drivers to minimize the tax they pay including keeping their car tuned up and driving less. This tax would also create a demand for cleaner cars and an incentive to maintain the existing pollution control devices of cars, something the current Clean Air Act does not accomplish.

Figure 6 illustrates the incentive an effluent charge such as the smog tax would create for car drivers to reduce the amount of pollution they generate. With the smog tax set as a constant rate of "PST", or price of the smog tax, the marginal cost of cleaning up the air pollution from a car is shown for an individual driver. The car owner, in this example and at this tax rate, will choose to reduce the pollution output of his car by the amount "R_2". At this point he will be driving less and maintaining his pollution control equipment, but will not have an incentive to add additional equipment. This is because the cost of driving less and maintaining control equipment is less costly than the taxes that would be paid if these measures were not taken. If society desired more of a reduction in pollution, this could be obtained by simply raising the smog tax. (See next page.)

A similar proposal was later advanced, called the Mills-White proposal. This followed much the same format as the Rand proposal, but expanded it to account for the different costs of pollution in different areas. A national tax would be paid by all drivers as in the Rand proposal, but drivers in areas of high population density would pay more, reflecting the higher costs pollution imposes on people in already polluted areas. This would create an appropriate disincentive to drive cars in the city.

In the case of air, we are dealing with a truely "public" good. No one person can own air. However, there are other environmental resources such as lakes, forests, etc., which could be privately owned. Because of other factors though, or because these property rights are not clearly defined, the proper amounts of the resource may still not be allocated to each use. In this case the government would be justified in setting up an effluent charge system to facilitate reallocation.

"THE SMOG TAX"

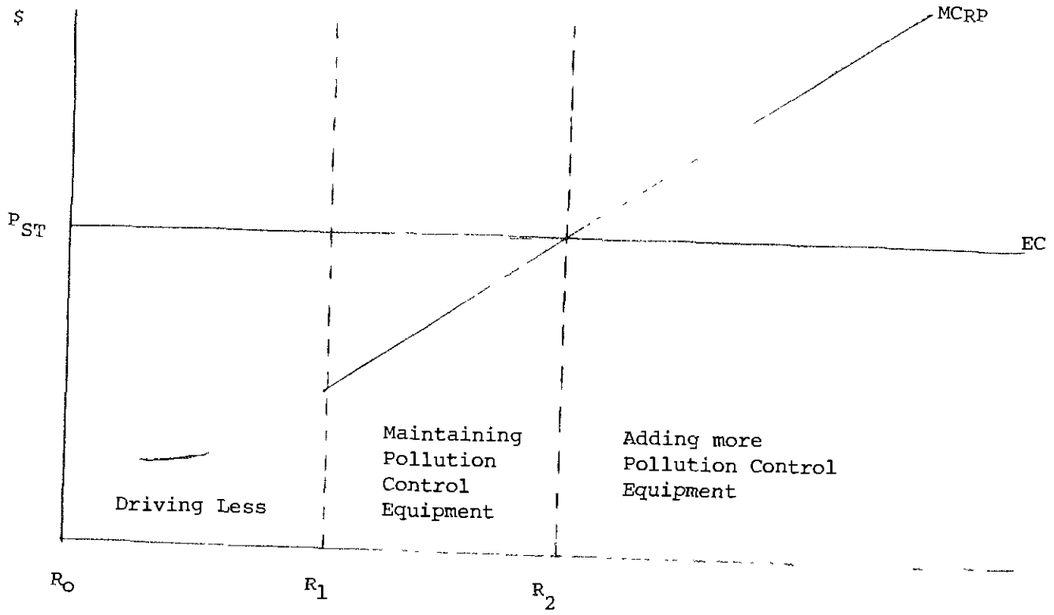


FIGURE 7

EFFLUENT CHARGES AS A LEAST COST

SOLUTION

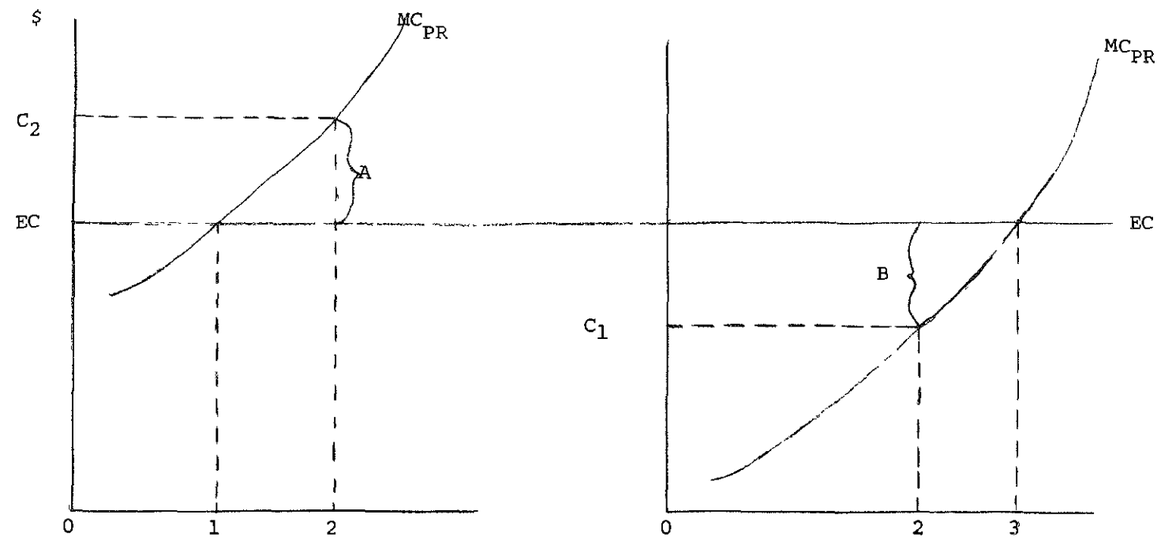


Figure 7 above illustrates how an effluent charge imposed on two pollution sources will result in a "least-cost solution" to cleaning up a given amount of pollution. Instead of having both firms clean up two units of polluiton to arrive at the final goal of four units elimination, the effluent charge distributes the clean up costs more efficiently. The cost to Firm "1" would be "C2" for the last unit of pollution reduced while the cost to Firm "2" would be only "C_1" under the current laws. With an effluent charge however, each firm would eliminate pollution up to the point where it became more expensive to eliminate it than to simply pay the charge. Because the marginal cost of pollution control is high for firm "1" the cost of reducing pollution quickly exceeds the effluent charge. It will only reduce one unit of pollution. Because firm "2" can reduce waste more cheaply. It is more profitable for it to treat three units of waste before it stops and pays the charge on the rest. What the effluent charge has actually done is eliminate the fourth unit of pollution at a marginal cost of "B". Under the existing regulatory scheme, eliminating the fourth, or last, unit of pollution would have cost the higher amount "A".

If an effluent charge were applied instead, at the level of "EC" in Figure 7, four units of pollution would still be eliminated. However, both firms would make their own profit-maximizing decisions and arrive at a level of pollution control that is most efficient for them. In this case, Firm "2" will eliminate three units while Firm "1" will only eliminate one unit. The marginal cost for Firm "2" of pollution control is lower than the cost to Firm "1". This could be because the Firm "2" plant is newer and more efficient or because the plan is more amenable to control equipment or some other reason.

An explanation of why each firm chooses the amount it does is provided in Figure 7.

SECTION 9: PASSING COSTS ON TO THE CONSUMER

One arguement that has been used against effluent charges as a pollution control technique is that the added cost of the charge will simply be passed on to the consumers of the good. However, this is exactly what is desired from an economic point of view. The costs that were spread around to society in general are now reflected in the price of the good and paid by the users of the good. In this way the amount of the good demanded will reflect society's true valuation of the good. Because of the higher price resulting from the effluent charge, less of the good will be demanded, less will be produced, and consequently less pollution will be generated.

The costs of reducing pollution by current regulatory means are passed on to consumers anyway because of the costs of added pollution control devices, however, with an effluent charge the cost is passed on to all consumers of the good. When a firm uses pollution controls that are less costly than the effluent charge, that firm's product is demanded more because it costs less. With the current control scheme, only the costs of the controls are passed on so only firm's that use controls charge for it Consequently, their goods become more costly relative to other firm's products and less of the cleaner product is demanded. This is clearly a disincentive for a firm to "clean up its act" and an incentive for a firm to stall complying with pollution control regulations while an effluent charge creates incentive to reduce pollution.

SECTION 10: ECONOMIC THEORY VERSUS THE "REAL WORLD"

The analysis presented here has been explained in terms of a perfectly competitive market. This situation certainly does not exist now and may never have actually existed. However, for the purposes of explaining how an individual, a firm, or the economy will react to certain stresses or changes in the economic situation, it is the best means of illustration. In applying the ideas discussed here to actual economic situations, some alterations have to be made, but the general applications and the principles behind them are sound economic analysis.

As government expenditures on environmental quality increase in the future, opposition to environmental programs is certain to grow. The principles of environmental economics discussed in this section can help to reduce those costs, thus making funds available to other pressing environmental problems.

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Part 4:
Air Quality

SECTION 1: THE BTU "BUBBLE"

The EPA's "bubble" approach to controlling air pollution was published in the January 18, 1980 issue of the Federal Register. According to the bubble concept, the total pollution output from a facility is controlled rather than imposing specific requirements for each stack or vent. This allows manufacturers to control pollution from each source in the easiest and most cost effective manner. Total emissions, however must continue to meet Federal Standards.

One could imagine a factory covered with a large dome. Under the dome any mix of control measures may be employed as long as there is no increase in a particular pollutant escaping from this "bubble". The plan encourages industry to develop better pollution control technologies through economic incentive. For example, a factory may choose to decrease pollution in a process which is easily controlled and allow greater output in an area more expensive or difficult to control. Under the bubble concept industry can benefit economically without cost to the air quality. It is a matter of less expensive pollution control, not less control.

According to the EPA the bubble may be applied "as long as total environmental benefits are not reduced". For this reason trade-offs cannot be made by reducing one type of pollutant to increase another. Certain hazardous pollutants may not be included in the program at all. In each case a proposal must be submitted to the state and approved by the EPA to assure that all standards are clearly met.

This year Connecticut is proposing to update the sulfur dioxide (SO_2) attainment and maintenance portion of its SIP (State Implementation Plan). A revision known as the "BTU Bubble" has been drafted and presented to the EPA. Connecticut's version is a new application of EPA's bubble concept. This program will allow industries to trade reductions in energy consumption for increases in the sulfur content of the fuel it burns. Like EPA's bubble, the BTU bubble prepresents a way to control air pollution at less expense with the added advantage of encouraging energy conservation.

A factory's total allowable SO_2 emissions will be based on the sum of all energy requirements, not just those supplied by the burning of sulfur containing oil.

Increased production will also be considered in a formula determining emission levels. For example, a base year between 1972 and 1979 will be chosen by the industry. If from that time production levels tripled without an increase in energy consumption, the industry could triple the sulfur content of its fuel. This was designed to reward past energy savings. Based on these calculations however, localized increases in air pollution could take place. The surplus air quality improvements from Connecticut's low sulfur-in-fuel program are essentially being traded for energy and economic advantages to the state.

The Council supports the idea of using the bubble concept to promote energy conservation. The direct trade-off between reductions in sulfur containing fuel for increases in sulfur content of fuel has many benefits. It results in the use of less petroleum derived energy, represents economic savings for industry and maintains the present level of air quality.

The program proposed in Connecticut, however, goes beyond this basic concept of the bubble. This program would allow industries to use less expensive, higher sulfur fuel in return for production increases and energy savings as far back as 1972. These industries would be rewarded for efforts that were already economically advantageous. Furthermore energy trade-offs for reductions in non-sulfur sources and production increases will allow for an increase in SO_2 emissions. It would seem that efforts to conserve energy should be focused on the polluting sources rather than all energy forms. By considering <u>only</u> sulfur containing energy sources as trade-offs in the program a reduction in petroleum use and an increase in "alternative" energy use could both be encouraged.

As the disparity in price between low and high sulfur fuel increases, it may be possible to encourage air quality improvements through the bubble. If an industry cuts its sulfur containing fuel use in half, something less than two times the sulfur content may be allowed. The economic incentive would still remain, but the resulting clean air margin could be enjoyed or used to attract new industry.

Connecticut continues to uphold its low sulfur-in-fuel requirements despite pressure from utilities and other business interests to relax these standards. The state is also planning on taking action against the EPA if the approval of the burning of high sulfur fuel is upheld in the New York metropolitan area. Air Quality is obviously of great importance to Connecticut and the Council urges that efforts be made to maintain or improve present conditions. We support the use of a "bubble" program for economic as well as air quality concerns. We would recommend that a bubble program be instituted in Connecticut, but that such a program <u>not</u> allow for net increases in sulfur dioxide or levels of any other pollutant. We would also recommend that the economic incentives involved with the BTU Bubble be looked at more closely. The possibility may exist now, or as oil prices continue to rise, to use the bubble to economically imporve air quality rather thab a simple one to one trade-off.

<u>Sulfur Variance</u>

Concurrent with the possible legal action against the EPA for granting sulfur variances to three New York generators, an application for a similar variance was pending in Connecticut. The application sought permission to burn oil with a 2.2 percent sulfur content in several North East Utilities and United Illuminating power plants.

If the variance granted in New York is not recinded, Connecticut may be unable to burn any higher sulfur fuel. Transported pollution could potentially consume the clean air margin resulting from the low sulfur-in-fuel program here. Not only would this prohibit the granting of in state variance requests and implementation of the BTU Bubble as proposed, but new industrial development would also be prevented.

Connecticut's own variance requests also have the potential to use up the clean air margin thus limiting future industrial development. In fact, DEP models, approved by the EPA show that burning of 2.2 percent oil at some of the proposed plants would violate federal air standards. The utility's model shows that no violations will result. This conflicting evidence must be carefully considered before any decision is made. If any variance is granted by the DEP, the utilities must then seek approval of the plan by the EPA.

The proposed BTU Bubble and sulfur variances bring with them both economic and environmental impacts. The Council feels that good air is a priority and an important goal for Connecticut. We believe that higher sulfur fuels can be used to an economic advantage in a manner consistant with this goal. We would urge that careful consideration be given to the preservation of a clean air margin for future development. As in the past, efforts should be focused on reducing pollution with exceptions made only in cases of necessity or where maximum benefit may be derived.

SECTION 2: STATE IMPLEMENTATION PLAN UPDATE

Connecticut's State Implementation Plan (SIP) is a document which guides the state's efforts to protect air resources. The plan, required by the Federal Clean Air Act, resulted from the combined efforts of the EPA, the State Air Compliance Unit, and citizen participants. Its purpose is to demonstrate how federal clean air standards will be met within the deadlines set by Congress.

Connecticut submitted its first SIP in late 1971 and it was approved by the EPA in May of 1972. Due to failure to meet requirements for motor vehicle pollution reduction the state was directed, in August 1973, to revise the SIP to include a Transportation Control Plan. The focus of the revision at that time was to reduce auto emissions by increasing carpool and public transportation use.

The Clean Air Act was amended in 1977 requiring each state to designate its air quality control regions as "attainment" or "non-attainment" for the federally set pollution standards. Any state having a non-attainment area was required to submit an additional SIP revision showing how updated deadlines would be met. Connecticut is designated non-attainment statewide for ozone and total suspended particulates. Certain other regions are non-attainment for carbon monoxide.

Thus the main purpose of Connecticut's current SIP revisions is to meet the requirements of Part D of the Clean Air Act: "Plan Requirements for Non-Attainment Areas".

These revisions were to have been approved by the EPA by July 1, 1979. Until these revisions are approved, construction of new major stationary sources of pollution is prohibited. Other sanctions such as withholding of federal funds for programs including highways, housing and sewage treatment plants are also possible.

Because of much controversy and citizen concern regarding the current SIP revisions, the EPA arranged to hold a public meeting at the Capitol to discuss the plan and take public comment. Several of provisions included in the plan and the related public comments follow.

The Clean Air Act requires that SIP revisions shall be coordinated with the transportation planning process. The goal of this revision is to reduce transportation system emissions through means compatible with other community goals. The program calls for planning at both the state and local level looking at long and short range needs. All newly proposed projects must also undergo a review process. Part of this process includes an indirect source review (ISR). While the EPA is proposing to approve this portion of the SIP, a number of people expressed concern that the ISR has been weakened. The program will cover only new highway projects and not other traffic generators such as shopping malls as was previously proposed.

Transportation is again addressed in the required "commitment to public transportation". In the current revisions, the state commits itself to the maintenance and improvement of the overall level of transit service to meet, at a minimum, basic transportation needs. This is to be accomplished through ridesharing programs, express bus service, improved rail service, purchase of new buses and various other means. Comment concerning this portion of the SIP generally called for a stronger commitment and expansion of the present programs.

All states unable to meet the federal ozone and carbon monoxide standards by 1982 must also include an automobile inspection and maintenance program for passanger vehicles. Those exceeding set standards must undergo mandatory maintenance. Overall the program must achieve a 25 percent reduction in exhaust emissions for both hydrocarbons and carbon monoxide. Comments on this program centered around enforcement problems and concern over delays in implementation.

The EPA's proposed rulemaking on these and other portions of the SIP revision was published in the July 2, 1980 issue of the Federal Register. A complete transcript of comments received at the EPA hearing is also available at the Air Compliance office in the State Office Building. The Council's comments and recommendations with regard to the Part D SIP revisions are as follows:

Transportation Planning

Transportation planning is felt to be an important tool in air pollution control. The Council is concerned that changes in present plans are too easily achieved to accomodate new development. Future development must be included in transportation planning and developers must be encouraged to adhere to existing plans. Efforts to clean the air such as this are only productive when carried out and enforced.

Public Transportation

The Council finds the language of the commitment to public transportation to be weak. We suggest that a more concrete commitment is in order and a substantial indication that priorities will be reestablished to provide sufficient transit service is necessary. It is important to make investments in and commitments to public transporation now, before the need becomes even more pressing.

Motor Vehicle Inspection and Maintenance

The Council is concerned with the effectiveness of the inspection and maintenance program. We feel that a sticker program may hold less incentive for compliance than inspection as a condition for vehicle registration. The Council recommends that the effectiveness of the sticker program with local enforcement be monitored to see if a vehicle registration format would be more appropriate. We would also urge the EPA to strictly require neighboring states to meet all air standards to assure that Connecticut does not suffer the consequences of other's pollution.

SECTION 3: ACID RAIN

Introduction

Acid rain is a rapidly spreading but porrly understood environmental problem. When nitrogen oxides and sulfur dioxide are emitted into the air they react with moisture to form acid precipitation. The increase in precipitation acidity results in extensive and immediate damage to aquatic ecosystems and indirect damage to terrestrial systems. This problem is of special concern to Connecticut because, on the basis of the chemical composition of its soils, its climatic patterns, and its vegetation, the state is considered to be highly sensitive to acid rain. In 1956, only the north west corner of the state recorded acid precipitation; today the entire state is affected by it.

Sources

The main sources of SO_2 and NO_x, which are the precursors to acid rain, are fossil fuel power generating plants and automobiles, respectively. Coal fired power plants are currently the most active producers of SO_2, although "scrubbers" can be effective in removing most of the pollutant. The Carter administration is pursuing an energy plan which proposes to convert many oil fired plants to coal. This course may lead to a 25 percent increase in SO_2 emissions in the northeast United States. (See Energy: Coal Conversion).

The sources of much of Connecticut's acid rain are not located within the state. It has been estimated that as much as 75 percent of this region's sulfur oxide pollution comes from outside New England. Much of this comes from the Mid-West, where emissions controls are less stringent than Connecticut. It has been estimated for instance, that Ohio and Indiana emit 13 times more sulfur oxides from smokestacks than all of New England.

Sulfur dioxide is usually emitted from power plants through "tall stacks" which keep the emissions from having a drastic effect nearby. Now, however, the emissions are coming back to haunt us in another form by travelling great distances in the atmosphere and being deposited as acid rain. Much of the emissions (approximately 50 percent) are still deposited as "dry" pollutants, but mix with moisture later to form acid.

By avoiding the treatment of SO_2 and NO_x and simply trying to push it further away, we have converted what was once a regional problem to a more widespread phenomenon.

Effects

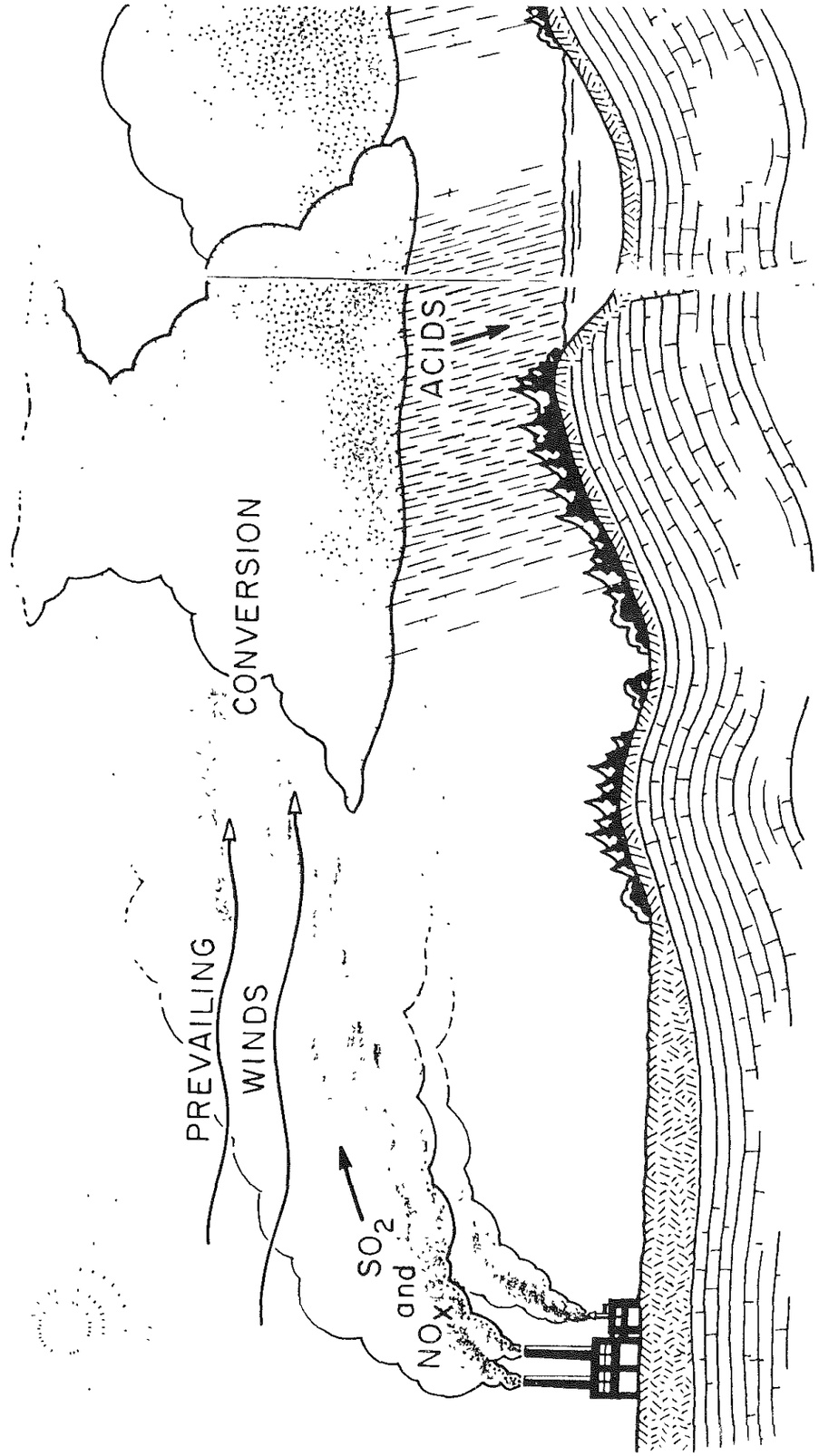
Acid rain affects both aquatic and terrestrial ecosystems. The three main effects of acid rain are: 1. acidification of lakes, 2. the release of toxic metals from soil, 3. a reduction in forest and crop productivity.

The acidification of lakes was first observed in Scandanavia, where many of the lakes can no longer support fish populations. The same reduction in aquatic life diversity is now observed in many lakes in the Adirondacks. The acidified water damages the larval stage of fish and indirectly destroys adult fish by releasing aluminum into the water, which interferes with the functiong of the fishes' gills. Aluminum is released from the bottom sediments and rock as ions because the acidic conditions increase the water's solubility. Mercury levels in fish have also been found to increase as the acidity of a lake increases.

Acid rain attacks the forest ecosystem both directly and indirectly. As the rain is deposited on the leaf canopy the leaves can be "burnt" by the acid; calcium and potassium are leached directly from the plant tissues. Over the long-run the effects can be less easily observed although they are even more damaging. The increased solubility of the rain caused by acidic conditions causes nutrients to be leached from the soil. Also, toxic metals are released and made available for root absorption. The decomposition of organics is slower in acidic conditions. As nutrients are leached from the soil they are replaced by ions from the acid, precluding the attachment of replacement nutrients. Thus, with less nutrients being made available to plants because of leaching and decreased decomposition, the forest may actually be "starved" by acid rain.

Outlook

Because the pollutants which cause acid rain may travel hundreds of miles before they are deposited, the problem of acid rain must be dealt with primarily on the federal level. In his Second Environmental Address to Congress (1979), President Carter called for research on acid rain to be extended for the next 10 years at the rate of 10 million dollars per year. The 1980 funding for acid rain monitoring and research is 5.6 million dollars.



There is obviously a strong commitment on the part of the federal government to curtail the problem of acid rain. However, the national commitment to energy independence is a conflicting goal. There are seven oil-fired power generation plants in Connecticut that have the potential for conversion to coal by the Federal Department of Energy. These are among 62 such plants in the United States. Connecticut must, because of its vulnerability to acid rain, follow closly energy and air pollution developments concerning SO_2 and NO_x.

Recommendations

1. Conversion of power plants to coal use should be discouraged, especially in Connecticut, unless "scrubbers" or other pollution control equipment are included.

2. Connecticut presently has more rigorous sulfur dioxide emissions standards than the federal government. Because most of Connecticut's SO_2 and NO_x comes from outside its borders, the state should encourage the federal government to increase its pollution standards to Connecticut levels and thus aid Connecticut and the nation to alleviating its acid rain problem.

3. The state should establish an acid rain testing program. The pH must be tested as well as NO_x and SO_2 levels in order to decide what is the makeup and thus the source of our acid rain. Since Hartford is not an industrial city, the surronding area's acid rain may be the result of NO_x emissions from automobiles. If this can be determined, Connecticut may be able to deal with some of its acid rain problems on a regional basis related to transportation.

References

EPA research Summary: Acid Rain, USEPA October 1979 EPA-600/8 - 79- 028
EPA Journal Reprint, July/August 1979 Mounting Acid Rain, by Dr. Norman R. Glass
Statement of Douglas M. Costle; Administrator U.S. Environmental Protection before the Subcommittee on Environmental Pollution, Committee on Environmental and Public Works, U.S. Senate, March 19, 1980.

SECTION 4: COAL CONVERSION

Introduction

Under "The Energy Supply and Environmental Coordination Act" of 1974 and "The Powerplant and Industrial Fuel Use Act" of 1978, the United States Department of Energy is empowered to prohibit the use of oil and natural gas at existing electric utilities and commercial facilities. As a means of achieving President Carter's goal of energy independence, the Department of Energy has 62 electrical generation plants under consideration for conversion from the use of oil and natural gas. In almost every case this would mean conversion of the plant to coal use.

Procedure

The acts define a procedure for ordering conversion which begins with a conference between the affected utility and the Economic Regulatory Administration. The prohibition order is published in the Federal Register after which the utility has 90 days to challenge the ERA's initial findings. A decision is then made whether to proceed and this is also published in the Federal Register. There is then another 90-day period during which the utility can submit evidence as to why it should be exempted from the order. A tentative decision is then made and a public hearing can be requested within the next 45 days. Only after these steps are completed can a final prohibition order be issued.

Air Quality

The environmental problems which coal conversion could aggravate are air quality and solid waste disposal. The extent to which air quality could be degraded by coal-fired generation plants is illustrated by the following table:

Emissions (Tons/day from 1,000 Megawatt plant)*

pollutant	coal	oil	gas
SO_2	220-250	85	00.002
NO_x	33-38	35	19.
CO	1.0	0.01	~0
Particulates	7.2	1.2	00.75

* Dale W. Moller, "Environmental Consequences of Electrical Power Generation."

Connecticut is currently in compliance with federal primary, or health, standards for SO_2 and particulates, the two air pollutants characteristically produced in excess by coal plants. When the secondary, or welfare and property damage, standards for SO_2 were rescinded by the federal government Connecticut retained them as state standards, and we are presently in attainment of these also. The federal annual primary standard for SO_2 is 80 ug/m^3 (micrograms per cubic meter) and the secondary standard is 60 ug/m^3. The current ambient air concentrations of SO_2 are currently about 30-35 ug/m^3.

Converting electrical generation plants in Connecticut to coal will increase the level of SO_2 emissions. Acid rain resulting from SO_2 emissions is beginning to be recognized as a major global environmental problem, (See "Acid Rain"). There are currently two plants within the state which are being considered for conversion, while seven generating units could potentially be converted in Connecticut. The effect that the conversion of the Norwalk Harbor generating station, owned by United Illuminating, may have on SO_2 levels in the state has been studied by a task force of state and private interests. The results of this study have been published in Report on the Economic and Environmental Impacts of a Conversion to Coal of the Norwalk Harbor Electric Generating Station, April 1980. The results of this study show that the concentration of atmospheric SO_2 will increase by only 1-3 ug/m^3, depending on the sulfur content of the coal used.

Any degradation of Connecticut's air quality is regulated by EPA rules of "prevention of significant deterioration" (PSD). This means that although Connecticut's air has only 35 ug/m^3 SO_2 the air quality cannot be degraded up to the primary standard of 80 ug/m^3. Once standards have been achieved, only 20 ug/m^3 of SO_2 can be added. The conversion of the Norwalk power plant would use up about 10 percent of the PSD. Once the PSD is used, no new sources of SO_2 may be added. The same concept applies to particulates. This issue is closely linked to the prospect of future economic development in the area of plants converted to coal use.

Solid Waste Disposal

A by-product of coal combustion is ash. Fly ash is what is removed from the emissions while bottom ash is simply residue from combustion. The Norwalk plant is expected to produce approximately 88,000 tons of ash per year. There are two ways to dispose of this ash: landfill or reuse as a building material. There is not currently a market for ash as a building material in Connecticut, but one might be developed in the future.

Disposal of the ash in landfills presents a problem as a consequence of the sheer volume generated. The Norwalk Harbor task force was unable to locate any landfill in Connecticut suitable for long-term ash disposal. The location of the landfill must be based upon protection of ground water and surface waters because the ash leaches into the water when it comes into contact with it. The ash acidifies the water as well as introducing trace elements of heavy metals and other toxics. The use of a wetlime or limestone flue gas desulfurization system would increase the solid waste output to 344,000 tons. The wastes from this process are more toxic than ash and must be disposed in a secure landfill.

Economic Effects

There are economic effects involved in coal conversion as well as environmental ones. While the increase in particulates and SO_2 levels will be small over the longrun, the 24-hour and 3-hour standards are more likely to use up sizable portions of the significant deterioration allowances. For instance, in the case of the Norwalk plant, there may be difficulties in obtaining new source permits in neighboring towns because of the sort-term deteriorations resulting from coal conversion. Thus, the conversion to coal of certain electric generation plants may preclude future economic development in nearby regions.

Conversion to coal use at electrical generation plants requires that large amounts of capital be invested. Some utilities have claimed that it is simply not possible for them to raise this much capital for this purpose. The "Powerplant Fuel Conservation Act of 1980" is a proposal to allow utilities to keep the difference between the price of oil and the coal they would be using to recover the capital costs rather than have the lower price of coal reflected as lower electric rates to consumers.

High Sulfur Fuel

In 1972, under strong pressure from environmentalists, Connecticut placed a ban on burning oil with a sulfur content higher than 0.5 percent. This led to significant improvement in the levels of SO_2 in Connecticut's air. This year, however, the state's two large utilities, Northeast Utilities and United Illuminating, applied to have that ordinance rescinded. They claimed that allowing them to burn 2.2 percent sulfur oil would result in savings to electricity consumers with little environmental deterioration.

The issues raised with high sulfur oil are much the same as with coal. The resultant degradation of air quality resulting from allowing the combustion of high sulfur oil by Connecticut's utilities would aggravate our growing acid rain problem and use an unknown portion of our PSD allotment, precluding some future economic development.

Recommendations

1. When a Connecticut utility is prohibited from using oil or natural gas, the Department of Environmental Protection should request a public hearing and raise the question of solid waste disposal since no long term disposal sites exist in Connecticut. The problem of acid rain should not be allowed to fade from public view and this issue should also be addressed at each public hearing.
2. It has been estimated that a significant percentage of Connecticut's air pollution comes from out of state. The Department of Energy should provide funds to minimize the air pollution effects of coal conversion so that economic development can continue in Connecticut.
3. The PSD program of EPA restricts the amount of polluting industry that a state can allow within its borders. In order to allow for economic development in states like Connectiuct, the DOE should require the best pollution control technology with its coal conversion projects so that these projects will not use up an unnecessarily large portion of our PSD allotment.
4. The Council on Environmental Quality recommends that Connecticut maintain its ordinance limiting the sulfur content of the oil used by utilities to 0.5 percent. If future energy considerations present a more pressing need to use high sulfur oil, all available pollution control measures should be taken in order to protect past air quality gains.

References

Citizen's Summary-State Implementation Plan for Air Quality, Connecticut Department of Environmental Protection, July 1979.

Connecticut Air Quality Summary 1978, Department of Environmental Protection, April 1980.

Report on the Economic and Environmental Impacts of a Conversion to Coal of the Norwalk Harbor Electric Generating Station, Norwalk Harbor Station Study Task Force, April 1980.

TABLE 6

SO_2 - PRESENT STANDARDS, PRESENT AMBIENT AIR QUALITY, AND INCREMENT ADDED BY CONVERSION TO COAL

(Expressed in micrograms per cubic meter ug/m^3)

	Present Ambient Air Concentrations	Incremental Concentrations Added by Burning Coal at Norwalk Harbor	Total Predicted Concentrations	Primary Standard	Secondary Standard	Remaining Margin
Within 10 KM of Station						
Annual	35			80	60*	
0.7S		1	36			24
1.5S		3	38			22
24 Hour	160			365	260*	
0.7S		15	175			85
1.5S		35	195			65
3 Hour	300				1300	
0.7S		100	400			900
1.5S		250	550			750
Beyone 10 KM of Station						
Annual	30			80	60*	
0.7S		1	31			29
1.5S		1.5	32			28
24 Hour	100			365	260*	
0.7S		50	150			110
1.5S		125	225			35
3 Hour	300				1300	
0.7S		350	650			650
1.5S		900	1200			100

* Connecticut Standard

Source: Connecticut Department of Environmental Protection Air Compliance Engineering

TABLE 7

INCREASED EMISSIONS FROM COAL (1)

TO THE AMBIENT AIR

	Residual Oil 0.5%S		0.7%S Coal		1.5%S Coal	
	Actual Emissions Tons per year	Total Tons per year	% increase over oil	Total Tons per year	% increase over oil	Total Tons per year	% increase over oil
Sulfur Oxides	6,140	11,880	93%	13,450	119%	25,450	314%
Particulates (2)							
0.12 lbs. per million BTU emission limit	557	1,340	140%				
0.2 lbs per million BTU emission limit	557	2,240	302%				
Hydrocarbons	79	134	70%	134	70%	134	70%
Nitrogen Oxides (3)	3,350	10,050	200%	10,050	200%	10,050	200%
Carbon Monoxide	393	447	14%	447	14%	447	14%

(1) Ash content of coal is assumed to be 10% by weight.

(2) Connecticut emission control requirements for existing sources in 0.2 pounds per million BTU of heat input. Increased emission control requirement of 12 pounds per million BTU would require improvement of electrostatic precipitators. This emission limit was considered as a revision to the State Air Quality Implementation Plan.

(3) Connecticut emission standard of 0.9 pounds per million BTU coal vs. 0.3 pounds per million BTU oil.

Source: Northeast Utilities, Connecticut Department of Environmental Protection.

Part 5:

Legislative Changes in Environmental Laws

SECTION 1: CONNECTICUT'S BOTTLE BILL

The First Year

On January 1, 1980 Connecticut became a state among those with bottle deposit laws. Vermont, Maine, Michigan, Washington, Iowa, and Oregon are states with such laws already in existance.

The bottling industry estimates that 80 percent of beer and soda containers bought in Connecticut are being returned in Connecticut and it shows on our public roadways and in our state parks. The manager of Hammonasset State Park noted that it took just half the time usually needed to clean up the park after Memorial day this year due to the reduction of carelessly discarded cans and bottles. At Rocky Neck State Park the manager said the amount of time it takes to pick up the park area after a weekend has been substantially reduced since the bottle bill went into effect.

The Bottle Bill effects have also been felt in local communities. Southington's highway superintendent calls the Bottle Bill "The greatest thing that ever happened since the invention of the wheel" and goes on to add "Spring clean up chores of picking up litter were next to nothing this year".

In the town of Windham, Connecticut the deposit is having its desired effect in the reduction of litter. Since January 1980 the number of trips made from the Windham town transfer to Killingly for recycling have been substantially cut.

Individual residents who livealong roadways are also seeing some changes. One Avon resident living on a dead end road used as a drinking spot stated litter has virtually disappeared since the Bottle Bill.

A soda shop in Groton, Connecticut had been selling refillable bottles long before the Bottle Bill became law. The owner stated "We've been handling returnables for so long we've got it down pat". Some, like this store owner are convinced it is too early to judge the effectiveness of our infant Bottle Bill without giving it a growing chance. This is not the case everywhere. It will take some time for everyone to adjust so things can run smoothly. However, examples such as this should give Connecticut the incentive it needs to make the Bottle Bill work.

Easily accessible redemption centers are believed by many people to be the key concept to a smoothly running Bottle Bill in Connecticut. It stands to reason a facility designed specifically for this purpose could best accommodate the processing of returnables. Today, Connecticut does not have enough redemption centers thus placing the emphasis of the responsibility on the consumer and dealers. More, and easily accessible redemption centers in Connecticut would mean relieving some of the responsibility from all parties concerned.

Not only is the intent of the Bottle Bill to clean up Connecticut's environment, give our Connecticut landfills longer lives because of the reduction of cans and bottles filling them, create new jobs to process returnables, but also to reduce the large quantities of energy needed to manufacture new cans and bottles. Recycling saves energy. Consequently Connecticut would become increasingly self sufficient and thus less dependent on imported oil, leaving more oil for far more important uses such as heating our homes and schools through the cold winters.

Some Connecticut store owners feel that eventually the cost of beverages will increase substantially to cover the cost of sorting, shipping, and other responsibilities of the like that go along with the deposit law. This may not be true since if enough energy can be saved by recycling, the price of beverages may even decrease!

Collecting bottles and cans that are tossed outside has become a frequent pastime of many children seeking the deposit. There has been some concern by Connecticut package store owners over potential legal problems of accepting beer containers from minors for redemption.

A number of Connecticut store owners and truck drivers for the bottling industries feel inconvienienced by the Bottle Bill. However, Teamsters Union truckers local 443 struck for and won a pay increase benefiting from the estimated two to three hours a day used for the picking up and returning of empties. Cleanliness, space to store bottles and cans, and labor are the three most irritating ramifications of the Bottle Bill for some Connecticut store owners. To avoid the deposit some package store owners no longer will carry soft drinks. And some vending machine companies have replaced a number of their machines from those which dispense cans to those that dispense cups of soda or soft drinks to eliminate the possibility of returnables.

The inconvienience for the store owner has not been addressed or examined fully. The continued success of the bill will be related to their ability and willingness to carry out their responsibilities.

During the past year they have been involved with the implementation of this legislation. The state should recognize their contributions and concerns. By working together the Bottle Bill can run more smoothly in the future and not be a source of inconvienience.

There have been attempts in Connecticut to exempt beer and malt beverage containers from the deposit and some have said special interests have influenced these suggestions. It is felt by some Connecticut residents and businesses that the Bottle Bill should be put to public referendum.

Bottle Bill Requirements

The Bottle Bill requires a deposit of not less than five cents on every beverage container. A beverage container being the individual, separate, sealed, glass, metal or plastic bottle, can, jar or carton containing a beverage. Beverage means beer or other malt beverages and mineral waters, soda water and similar carbonated soft drinks in liquid form and intended for human consumption. The deposit will be returned to the customer when the beverage container is brought back to a recycling or redemption center or a store that carries the same brand, kind, and size of beverage. Store owners are not required by law to accept containers of brands which they do not carry, those which are not correctly marked for deposit, and containers that have material foreign to the normal contents inside them. The store owner or redemption center gets back his deposit plus one penny for every beverage container returned to the manufacturer. The customer is not required by law to wash out the containers, however, common courtesy is appreciated greatly by store owners who must contend with large numbers of empties. One suggestion put before the General Assembly this year would require by law that customers wash out all returnables before they can be accepted for the deposit. A dealer shall not limit the number of beverage containers to be returned for redemption at said dealer's place of business. Dealers are required to accept containers for redemption during all normal business hours. Here again courtesy plays an important role. Many store owners get upset with customers who consistantly bring in large quantities of containers for redemption during peak business hours.

Conclusions and Recommendations

The positive incentives experienced from the Bottle Bill far outweigh any responsibilities felt through this awkward adjustment period. Any new law must go through a time such as this. Although Connecticut is not "in the clear" yet we have progressed substantially since January 1, 1980 when the Bottle Bill first went into effect. There is always room for improvement. The Council suggests the establishment of more redemption centers. With state help this can be accomplished, successfully streamlining the effectiveness of the law and alleviating many business and consumer complaints.

Redemption centers need to receive state support. Informational and incentive programs must be developed designed to inform "interested initiators" and the general public of all the various responsibilities they will encounter running a redemption center or just using one. A program geared towards encouraging the start of these much needed facilities.

Not only would redemption center owners receive the five cent deposit reembursement but an additional one cent per container would be paid to the owner by the distributor as well. The enactment of business terms and contracts between dealers and redemption centers could follow quickly after the establishment of more redemption centers. Store owners could send their customers directly to a nearby redemption center, making the business of accepting returnables much easier for many store owners. For example a dealer of returnable containers might pay a nearby redemption center to come and get the containers that were returned to that store thus alleviating many store owner complaints. The rate paid to the redemption center by the dealer could be based on the number of containers handled, time involved, milage, or trips made. Whatever the case redemption centers have to be established to give dealers this effective alternative.
One of the provisions in the bottle law states if there is a redemption center within one mile of a dealers place of business said dealer does not have to accept the returnables and may instead direct customers to the redemption center. What a relief to some lucky store owners. There may be amyriad of other business arrangements depending on various factors such as distance to the nearest redemption center competitive pricing for the service of picking up of returnables etc. The idea of new redemption centers poses new jobs and a whole new financially profitable avenue for creative ambitious people.

Under Connecticut's Litter Bill there are procedures for aquiring state grants to start new recycling centers. A fund should be provided for financial assistance for the starting of new redemption centers. Such a fund could be instrumental in getting the "ball rolling" for the start of redemption centers. The United States Environmental Protection Agency published a Citizen's Guide to Operating a Recycling Program. This publication should be a model to Connecticut for the drafting of other possible positive reenforcement publications and citizen participation plans for the future.

Public Act 80-95, AN ACT CONCERNING THE ORIGIN OF THE DEPOSIT ON BEVERAGE CONTAINVERS 1980- Allows distributors of carbonated beverages to initiate the deposit on nonrefillable containers; also exempts beverage containers sold for consumption on an interstate passenger carrier from the deposit.

SECTION 2: CONNECTICUT'S LITTER BILL

Connecticut's Litter Control Bill became effective on January 1, 1979. It was stunted at birth by ambiguous wording in its legislation, leaving many goals, deadlines, and constructive ideas unreachable for one year.

Under Public Act 78-319 of Connecticut's "Act Concerning Litter Control and Recycling", it is required of the Department of Environmental Protection to conduct or grant funds to conduct a litter

survey measuring the amount and composition of litter on the public highways, recreational land and urban areas of the state. The proposed deadline for the completion of that survey (under Public Act 78-319) states within six months of January 1, 1979 when the bill took effect. This deadline was not met and the survey is needed now as a basis of measure for all future progress of the programs to follow. The Department of Environmental Protection did receive an outline of the study. The outline was done by the two parties involved in conducting the study, (University of Connecticut students in cooperation with the Department of Agricultural Economics and Rural Sociology). The outline examines the various aspects of the litter problem in many different types of areas all around the state, but still did not list a specific deadline for the completion of the study. Since billing for revenue from the Litter Bill has begun, the survey becomes an integral tool needed in focusing funds to target areas of the state and channeling funds to the most efficient programs. Without the results of the survey it would be very difficult to accomplish the best possible allocation of funds.

Under Section 22a-82 of the Litter Bill the intent is to coordinate programs of state and local agencies relating to litter control and recycling. Also the development of public education programs concerning litter control and recycling were to be undertaken. Recycling campaigns, design of litter receptacles and placing those receptacles along state highways, campgrounds, beaches and any other state owned public property are mentioned in other sections of the bill. "Youth Litter Corps" are called upon in Section 22a-83 requiring the hiring of youths for seasonal and part time litter pick up programs.

Many of the previously mentioned programs have not yet been exercised. There were few funds for these programs in 1980, the reason being that the assessment to be paid based on either the number of locations of a business or the number of people it employs as stated under the Litter Bill. These figures could not have been construed to act retrospectively to January 1, 1980 when the bill took effect.

The billing of those who were assessed in 1980 has begun. The proposed uses for these funds must become realities as soon as possible because the Litter Bill is only effective until July 1, 1982. under Connecticut's Sunset Law.

Under Section 22a-85 of the Litter Bill it is stated that: Funds or grants will be available for public or private entities planning the establishment or expansion of recycling centers by filling out an application provided by the Department of Environmental Protection disclosing the information required under that section of the bill. The billing for revenues has begun without the preparation or availability of applications for such funding.

Thought must be given to the importance of exposing the public to the ideas of establishing not only recycling centers, but also the more feasible idea of starting redemption centers. That is something that just about anyone can make a successful profitable business out of at a fairly nominal cost. Whereas recycling centers necessitate a lot of capital for machinery and in overhead. It is possible to start a redemption center in an abandoned building

such as a gas station at little cost.

Public reaction has been fast in coming now that the assessments for the Litter Bill have been sent out. Many manufacturers feel they are being unjustly charged because they do not add to the litter stream.

Another concern is that if people are assessed for litter they may feel they have the right to litter. The strides made by the Bottle Bill may then be overshadowed.

These concerns indicate the possibility of an early repeal of this bill in the 1981 legislative session. If it is repealed, its positive aspects of getting citizens and youth involved should be maintained. The Solid Waste Unit would be the logical successor to handle such programs.

SECTION 3: 1980 LEGISLATION

The most widely discussed act of the 1980 Legislative session was Public Act 80-472, An Act Concerning Hazardous Waste Facilities. As the state and its industries prepare to meet the requirements of the Federal Resource Conservation and Recovery Act, the need for proper disposal facilities was further highlighted.

A special study committee as well as the Environment Committee of the General Assembly grappled with this question. The result was a bill that was debated extensively within and without the Legislature.

The act that was passed put the basics of the law together. It also set study committees to complete the functioning of the act. The proposals they bring to the 1981 session are expected to undergo the same critical examination that act went through. With at least one site presently being studied as a hazardous waste facility this bill is assured of much input.

In particular it has the ability to override local control. Because of the state's experience with siting solid waste facilities this feature has become necessary. Yet as citizen concerns and pressure increases local officials may become more actively involved with this bill.

Public Act 80-472, AN ACT CONCERNING HAZARDOUS WASTE FACILITIES- sections 1 and 4 through 12 effective July 1, 1981; sections 2, 3 and 13 effective upon passage, May 30, 1980 - Sections 1 and 4 through 12 of this act establish procedures and criteria which must be followed for a hazardous waste facility to obtain a certificate of public safety and necessity. Certificates are to be issued by a board which is to be established during the 1981 legislative session after an interim study of alternatives for composition of a board by a legislative committee (established by section 2 of the act). The committee will be composed of members of the standing committees on the Environment, Planning and Development, and Government Administration and Elections.

Section 3 requires the Department of Environmental Protection to adopt regulations to carry out the purposes of the act.

Section 13 requires the legislature's Environment Committee to study "methods for the siting of hazardous waste facilities," including the balance of state and local control over siting and operating facilities, insurance and bond requirements, incentives to municipalities to accept facilities, necessary regulations and local participation in regulatory activities. The Environment Committee's report shall be submitted to the General Assembly by January 1, 1981.

Solid and Hazardous Waste

Public Act 80-359, AN ACT ESTABLISHING A TASK FORCE TO STUDY PUBLIC HEALTH HAZARDS OF ASBESTOS - Establishes a 13-member task force to evaluate and make recommendations to alleviate public health hazards of asbestos. The task force, composed of the commissioners of the Departments of Environmental Protection, Health Services and Economic Development or their designees, and representatives of the asbestos manufacturing industry, the construction industry, physicians and the general public, is to report its findings and recommendations to the Governor and the General Assembly by January, 1981.

The act also prohibits the installation of vinyl-lined water pipes containing TCE or other solvents deemed toxic by the Commissioner of Health Services. By February 15, 1981, the Commissioner of Health Services is to report to the General Assembly on the public health hazards of these pipes and recommendations for future installations.

Public Act 80-130,AN ACT ADDING TO THE LIST OF CARCINOGENIC SUBSTANCES - effective October 1, 1980- Provides for any substance regulated as a carcinogen by the Secretary of Labor to be included on the list of carcinogens reportable to the DEP and the Department of Health Services (DOHS). Also requires the DOHS to promulgate regulations requiring the reporting of "designated human carcinogens".

Public Act 80-398, HB 5807, AN ACT CONCERNING PROHIBITED ACTS WITH RESPECT TO HAZARDOUS SUBSTANCES - effective October 1, 1980 - Section 1 requires asbestos products to be used in the construction or repair of structures to carry a warning that asbestos may cause cancer when inhaled.

Section 2 prohibits the installation of asbestos cement water pipes until the Commissioner of Health Services determines that such pipes do not create a public health hazard.

Public Act 80-464, AN ACT CONCERNING THE USE, PRODUCTION, STORAGE AND DISPOSAL OF CHEMICALS- effective upon passage, May 29, 1980- Requires any company engaged in the commercial production or mixing of hazardous substances designated by section 311 of the federal Water Pollution Control Act to provide a list of those substances to the local health director upon request within 30 days.

Special Act 80-49, AN ACT ESTABLISHING A SOLID WASTE MANAGEMENT TASK FORCE - effective July 1, 1980 - Establishes a 15-member task force to evaluate solid waste management policies and practices and to develop recommendations for long-range solutions. An interim report is due to the legislature's Environment Committee by October 15, 1980; the final report is due January 15, 1981. The task force will be composed of members of the Environment Committee, CRRA, the Solid Wast Management Advisory Council and representatives of the solid waste industry.

Public Act 80-263, AN ACT PROHIBITING THE USE OF THE PESTICIDE CHLORDANE.

Air Related

Public Act 80-458, AN ACT CONCERNING MOTOR VEHICLE EMISSIONS - Allows the commissioner of motor vehicles to negotiate a contract or contracts for implementation of an auto emissions inspection program, which shall begin on December 31, 1982. The act makes the state responsible for any costs which may not be covered by the inspection fee, which is still limited to $10.00. Also removes responsibility for vehicle repairs over $70.00 if the vehicle's air pollution control device is inoperative due to a manufacturing defect.

By January 1, 1981, the Commissioner of Motor Vehicles is required to submit an inspection agreement or agreements to the clerk of the Senate and the clerk of the House of Representatives for reviews by a 10-member legislative committee which will have 45 days to approve or reject the agreement(s).

Water Related

Special Act 80-38, AN ACT CONCERNING AN AQUIFER ASSESSMENT IN SOUTHWESTERN CONNECTICUT.

Public Act 80-157, AN ACT CONCERNING ABANDONMENT OF WATER SUPPLY SOURCES - Requires water companies to obtain approval from the Department of Health Services before abandoning a water supply source.

Public Act 80-184, AN ACT CONCERNING THE MEMBERSHIP OF THE CONNECTICUT WELL DRILLING BOARD.

Public Act 80-103, AN ACT CONCERNING THE SALE OF DETERGENTS.

Public Act 80-327, AN ACT CONCERNING MUNICIPAL AQUIFER PROTECTION- Authorizes local zoning commissions to consider the protection of existing and potential public surface and ground drinking water supplies in the development and amendment of the municipal plan of development and in zoning regulations.

Public Act 80-15, AN ACT CONCERNING CONTROL OF FEDERALLY OWNED SOURCES OF WATER POLLUTION - Allows the DEP to regulate water pollution sources owned by the federal government.

Public Act 80-16, AN ACT CONCERNING INLAND WETLANDS PERMIT APPLICATIONS Allows the DEP to waive the public hearing requirement, after public

notice, for inland wetlands permit applications when no significant impact is anticipated.

Special Act 80-45, AN ACT TO STUDY POLLUTION AND SILTATION IN COASTAL WATERS - Requires the DEP to conduct a study of pollution, siltation and erosion problems of Connecticut's coastal waters. The results of the study, along with recommended corrective measures and cost estimates, are to be submitted to the legislature's Environment Committee by January 1, 1982. The 1980-1981 state budget includes $30,000 to implement this act.

Public Act 80-356, AN ACT CONCERNING SMALL FLOOD CONTROL, TIDAL AND HURRICANE PROTECTION AND NAVIGATION PROJECTS - section 1 effective October 1, 1980; section 2 effective upon passage, May 28, 1980- section 1 authorizes the DEP to utilize non-structural measures for flood control.

Section 2 amends section 22a-30(c) of the General Statutes which authorizes the DEP to promulgate regulations under the tidal wetlands statutes. The act specifies that such regulations shall be consistent with coastal management laws and regulations and allow for permit coordination with other state and federal programs. The regulations are to establish criteria for evaluating tidal wetlands permit applications and may include informational material on regulated activities.

Conservation and Preservation

Public Act 80-172, AN ACT CONCERNING PARKING FEES AT STATE RECREATIONAL FACILITIES - 1980 Codifies the DEP's authority to issue Charter Oak Passes. Any Connecticut resident may obtain a pass for a fee entitling the holder to free parking on weekdays at any state recreational facility for the calendar year.

Public Act 80-375, AN ACT TO REPEAL AN EXEMPTION FROM THE PAYMENT OF NON-RESIDENT HUNTING AND FISHING LICENSE FEES.

Public Act 80-435,AN ACT CONCERNING PARKING AND CAMPING PERMIT FEES IN STATE PARKS AND FORESTS.

Public Act 80-461, AN ACT CONCERNING THE DISTRIBUTION OF HUNTING, TRAPPING AND FISHING LICENSES BY PERSONS OTHER THAN TOWN CLERKS.

Public Act 80-164, AN ACT CONCERNING THE REGULATION OF COMMERCIAL AND SPORT FISHING IN THE MARINE REGION - Gives the DEP regulatory authority over sport and commercial fishing in the marine district.

Public Act 80-255, AN ACT CONCERNING THE USE OF OTTER TRAWLS IN ESTUARIES - Prohibits the use of otter trawls within an established line in Long Island Sound.

Public Act 80-386, AN ACT CONCERNING THE LICENSING OF COMMERCIAL FISHERMEN.

Agricultural Land

Public Act 80-441, AN ACT INCREASING THE AUTHORIZATION OF STATE BONDS FOR THE PRESERVATION OF AGRICULTURAL LAND - Authorizes an additional $2 million (bringing the total to $9.05 million) for the agricultural land preservation program and requires the Commissioner of Agriculture to submit a report to the 1981 General Assembly outlining the objectives of the program and the extent to which the objectives have been met by the pilot program. Also rights acquisitions completed and appraisals made before October 1, 1980 to determine whether the factors to be considered in selecting acquisitions were indeed considered. The Board is to report its findings to the General Assembly by December 15, 1980.

Public Act 80-349, AN ACT CONCERNING THE AGRICULTURAL LAND PRESERVATION PILOT PROGRAM - Establishes the agricultural land preservation program as a permanent program with a sunset date of July 1, 1985. Also requires the State Properties Review Board to review and approve or disapprove acquisition of development rights by the Commissioner of agriculture.

Energy

Public Act 80-265, AN ACT EXPEDITING ENERGY CONSERVATION MEASURES FOR STATE INSTITUTIONS - Requires the Commissioner of Administrative Services to adopt regulations establishing standards for determining priority energy saving capital projects.

Public Act 80-406, AN ACT CONCERNING THE PROPERTY TAX EXEMPTION FOR BUILDINGS EQUIPPED WITH A PASSIVE SOLAR SYSTEM - Provides for additional tax exemptions for alternative energy systems.

Public Act 80-434, AN ACT CONCERNING A PLAN TO EXEMPT VEHICLES WITH THREE OR MORE PERSONS FROM PAYING TOLLS.

Public Act 80-251, AN ACT CONCERNING THE SALE OF WOOD FOR FUEL - Requires commercial fuel wood dealers delivering fuel wood which is sold by weight to have the weight verified by a licensed public weigher.

Special Act 80-53, AN ACT CONCERNING AN OPTIMAL ENERGY SUPPLY MIX FOR CONNECTICUT - Requires the Office of Policy and Management, in cooperation with the Department of Public Utilities, the Power Facilities Evaluation Council, the Department of Environmental Protection and the Department of Transportation to develop an optimal energy supply mix and short-range and long-range plans to attain the energy supply mix.

Special Act 80-70, AN ACT CONCERNING A STUDY OF A PROPOSAL TO ESTABLISH A CONNECTICUT ENERGY AUTHORITY.

Special Act 80-77, AN ACT CONCERNING THE PURCHASE OF EQUIPMENT FOR MASS TRANSPORTATION.

Heritage

Special Act 80-76, AN ACT ESTABLISHING A TASK FORCE FOR THE PRESERVATION OF THE HERITAGE OF CONNECTICUT - effective upon passage, May 29, 1980- Establishes a 25-member task force to develop policy recommendations for the protection and preservation of historical, cultural and natural resources.

Regulations

Public Act 80-471, AN ACT CONCERNING REGULATIONS OF STATE AGENCIES- effective October 1, 1980 - Amends the administrative procedures act as it pertains to the adoption of state agency regulations. Among the signigicant changes are:

1. A 30-day public notice requirement(instead of 20), detailed requirements for the content of the notice, requirements for mailing of the notice to interested persons.

2. Provisions for oral arguments at the request of 15 persons (presently 25) within 14 days (instead of 10) from the date of publication of the notice.

3. Requires state agencies to publish a notice of intent to adopt regulations within one year from the effective date of the public act requiring the adoption of regulations.

4. Requires state agencies to mail to interested persons the final working of the proposed regulations with explanations of changes made in response to comments and suggestions rejected.

5. Requires 10-working days' notice (instead of 5) for emergency regulations.

6. Requires approval of proposed regulations by the Attorney General prior to submission to the Regulations Review Committee. The Attorney General is to determine the "legal sufficiency" of the proposed regulations, meaning the absence of conflict with other state or federal laws and regulations, the Constitution of the United States and the Constitution of the State of Connecticut and compliance with notice and hearing requirements for proposed regulations.

7. Submissions to the Regulations Review Committee are to include a statement of purpose and the fiscal note appended to each of the 17 copies, including the original as signed by the Attorney General.

8. If the Committee disapproves any proposed regulations, the Committee will be required to state its reasons for disapproval.

9. If the Committee rejects proposed regulations without prejudice the agency may resubmit them with a summary of revisions.

10. Disapproved regulations proposed to implement a federally subsidized or assisted program are to be submitted to the General Assembly which may vote to reverse the disapproval. No action by the General Assembly will sustain the disapproval.

Part 6:

UPDATE

SECTION 1: THE WOODCUTTING PROGRAM

The popularity of the woodcutting program is evidenced by the number of citizens waiting to obtain cordwood permits. There are presently 8,000 names on the list. However, providing cordwood to the citizens of Connecticut is only a by-product of the primary purpose of the program-forest management. Over the years the program has become valuable as a fuel supplement source for many citizens and this aspect of the program has gained importance as the price of fuel has increased.

Within the year-long period, from July 1979 until June 1980, 17,000 cords of wood have been cut and removed from state forests. Of that amount, approximately 30 percent was sold to large buyers with the remaining 70 percent going to individual cutters or small groups. At $4.00 per cord, $68,000 was generated from the program. This amount was not enough to cover the operating and administrative costs of the program for that period.

All revenues from sales of cordwood go into the state's general fund and are not earmarked for operating the woodcutting program. Proposals have been made by the Management Analysis Unit of the Department of Environmental Protection and the Forestry Unit to raise the price of cordwood to generate more income. This income could then be used to operate a better woodcutting program; both from a fuelwood and from a forest management perspective. However, given that the funds generated from the program are not made directly available to the Forestry Unit under the current financing scheme, an increase in the price of cordwood would not necessarily lead to a better woodcutting program.

The individual woodcutter is unable to cut wood in much of the state forestland because of a lack of access into the forests. Consequently many cutters must relinquish their spot on the waiting list when they are unable to gain access to the area assigned to them. In order to better serve the citizens of Connecticut the issue of access into the forest, which is currently limited to industry and individuals with four-wheel-drive vehicles, must be rectified. Under the present financial scheme, manpower is not available to make the forests more accessible. Also, areas must be marked before cutting can begin and the Forestry Unit is not staffed well enough to mark all the areas that could be cut.

The lack of adequate manpower also encourages illegal cutting. Without supervisory personnel patrolling the state forests, there is no means to prevent people from cutting without permits. As wood becomes more attractive relative to other more expensive fuels, we can expect illegal cutting to become more frequent.

RECOMMENDATIONS:

The present means of funding the woodcutting program should be changed so that the program is financially self-sufficient. The price of wood to be removed from state forests should be raised to more nearly approximate the market price of uncut wood.

The money generated from these sales should then be used to fund more personnel in the Forestry Unit to operate the woodcutting program. The wood should be brought to access sites where individuals may cut. This would help control illegal cutting as only authorized personnel would be cutting and "poachers" would be unable to pass as permit holders. We believe this method of operating the program would increase its usefulness as both a forest management and fuel supplement program.

SECTION 2: FARMLAND PRESERVATION

"Disappearing" Farmland

According to the Federal Council on Environmental Quality, "prime farmlands are the most efficient, energy conserving, environmentally stable lands available for meeting food and fiber production needs." This valuable and essential resource is disappearing at the alarming rate of one million acres each year nationally. Agricultural lands of all types are lost at a rate of three million acres each year. These approximately 12 square miles converted each day represent more than the loss of crop production. Open lands serve as buffers for natural areas, help maintain water supplies, control run off, flooding and sediment damage, absorb pollutants, provide diversity of habitat and are aesthetically pleasing in themselves. The disappearance of agricultural land represents a cultural, economic and environmental loss for everyone.

One half of New England's native farmland has been converted to non-agricultural use in the past decade. Studies of the Governor's Task Force for the Preservation of Agricultural Land show that between 1949 and 1974 the number of farms in Connecticut alone decreased from 15,000 to 3,000. In that same time period the number of acres devoted to agricultural use fell from 1.3 million to 400,000. Even in 1974 the problem was determined to be "acute". The situation continues to worsen and following present trends Connecticut stands to lose 70 percent of its remaining acreage by the turn of the century.

There are many reasons for the conversion of farmland to other uses. One of the prime contributors is the high price for land offered by developers. Unfortunately the gentle rolling hills with fertile soil best suited for farming are also most desireable for development. Other factros encouraging farm abandonment include declining farm profits, an uncertain future, prohibitive beginning capital costs and pressure from the surrounding developed areas.

Current Situation

The effects of this decrease in agriculture are already being felt in the state. This past summer saw the biggest monthly increase in food prices in five years and the trend is expected to continue into 1981. This year's drought is largely responsible for the increases, however loss of farmland and bigger foreign markets also contribute. Higher energy costs also add to transportation expense for foods shipped from the Middle West or the Sunbelt. In Connecticut where less than 20 percent of the food is produced in state this factor is significant.

Ideally Connecticut should increase agricultural production to supply more of its own food thus alleviating some of the economic pressures. It is estimated that to produce one-third of the food needed, 325,000 acres must be kept in agriculture. The rapid loss of farmland should therefore be of concern to everyone in the state. The amount of arable land is rapidly declining, prices are on the rise and our capacity to increase production through further expansion and technology is limited. Clearly the situation has reached a critical point.

Farmland Preservation Program

Recognizing the importance of this issue, Connecticut has taken steps to preserve its ramaining farmland. Public Act 78-232 established a five million dollar pilot program, later increased to seven million, to enable the state to purchase development rights for endangered farmlands. Under the program, the state pays the difference between the value of the land as is and the value of the land if developed to the owner. Afterwards, the land may only be used for agricultural purposes but the owner is compensated for his loss of not selling at the higher development price. Resale of the property for agricultural uses is unaffected and the farmer continues to hold title to the property. In this way both the economic interests of the farmer and future use of the land for farming are protected.

Due to the limited funding for the preservation project and the magnitude of the task, land must be considered for the program on a prioritized basis. Criteria for inclusion in this program are the probability that the land would be sold for development, potential productivity, soil classification and the need to retain the type of agriculture for which the land is used. The value of the land is then assessed by two appraisals by outside consultants, review by the Department of Environmental Protection and screening by a committee including an appraiser, a bank president, and an agricultural economist among others.

Despite this seemingly rigorous evaluation and review, controversy still surrounding the program and some of the purchases made under it. In one instance, following the purchase of development rights by the state a farm was sold for a combined price 71 percent above the assessed value. To complicate the matter the new owner intends to begin egg production on the land. This is a legitimate agricultural use but it also defeatd the purpose of the program to maintain open, arable and productive lands. It was even in doubt as to whether the land was threatened by development due to a very high water table in the area.

While the pilot program has been made permanent it seems that some changes are required to do away with difficulties encountered such as those mentioned above. A provision that the land be kept open and productive would prevent agri-industries from consuming prime farmland better used for crops. It would also prevent large areas of land from lying fallow once adopted by the program. Final decisions as to what land to purchase should also be left to a committee, with the aid of public input. This will assure that only the most productive and valuable lands that are truly threatened come under the program which admittedly has limited funding.

Although it is a step in the right direction the famland preservation effort is not sufficient in itself. Due to the expense involved it will only be able to save a few farms in immediate danger of development as an emergency stop-gap function. It is estimated that $500 million will be required for viable agriculture. Clearly some additional action must be taken.

Other Means of Preservation

In an effort to prohibit the continued loss of valuable farmland, at least eight states have adopted "right-to-farm" bills. These are an attempt to prevent efforts to litigate or regulate established farms out of business In Washington State, for example, the law states that "agricultural activities established prior to surrounding non-agricultural activities are presumed to be reasonable and do not constitute a nuisance unless the activity has a substantial adverse effect on the public health and safety". Connecticut farms, recently under greater pressure from encroaching suburbs, are proposing a similar bill for consideration next year. The farmers wish to preserve practices in operation long before new developments sprang up nearby. The proposal does not make allowances for massive new large-scale agriculture, nor will it protect farms whose operations do pose health or safety problems. Although farming does create noise, dust and odor it must be recognized as a legitimate and essential land use requiring ample space like any other industry.

Other available means of protection include the institution of agricultural zones regulating the size of land that accompanies each dwelling unit. Some states employ agricultural districting which cites agriculture as a preferred use and allows for preferential tax treatment. Since zoning is not presently used here, and many Connecticut farmers still believe that inheritance and estate taxes are major reasons for farms being sold to developers, these options should be investigated.

In addition to efforts aimed specifically at rural areas, a strong urban revitalization policy is also important. By preserving cities and concentrating housing and other development in these areas, pressure will be taken from farmland. Other projects such as highways, power plants and air ports should also take farmland into consideration through the CEPA process.

Whatever the means used, the goal of farmland preservation must be met. The prospect of less dependence for food, greater pollution absorption capacity and other cultural, economic and environmental benefits should be incentive enough. Farmland preservation is not only for farmers and rural dwellers, it is in the best interest of everyone.

SECTION 3: HYDROPOWER

History

In the state of Connecticut, whose name was inspired by its long and plentiful rivers, hydropower was once the prime energy source. From the very early grain mills through the factories of the Industrial Revolution Connecticut depended upon water power to build its economy. The advent of petroleum as a cheap energy source halted the further development of hydropower. The many abandoned mill sites and run down dams scattered across the state attest to this.

The days of inexpensive petroleum products have since passed. Oil prices have risen drastically and supplies have become uncertain. Furthermore, nuclear power is no longer seen as the easy solution and coal carries with it the implications of increased pollution. Once again we look to hydropower, a traditional energy source which represents a proven technology that is both clean and renewable.

While hydropower is not expected to meet a large portion of the state's energy needs or displace any one source totally, diversification of energy sources is important. A mix of the various energy resources reduces dependence on foreign oil, stablizes price fluctuations and decreases the impact of supply interruptions. Hydropower has the added advantage of being available at an instant. There is no preparation such as heating water to steam necessary. The power can be turned on and off as needed to accommodate peak demands or emergency situations.

Conflicts

Despite these many advantages, there are also some problems associated with the development of hydropower. Some of the controversies are as follows:

Restriction of stream flow: To maximize power production and to assure consistant supply it is necessary to maintain sufficient volumes of water behind a dam. At times of low flow stream flow may be inhibited. This could potentially effect many forms of aquatic life and degrade water quality by reducing the dilution capabilities of a stream. These effects cannot be totally avoided where water is impounded, but may be minimized by establishing and adhering to minimum flow requirements. The system should also be operated keeping other values and uses of water clearly in mind.

Anadromous Fishery Restoration

The damming of rivers for hydropower and flood control severly restricts runs of American Shad and Atlantic Salmon, two important sport and commercial fish species. Efforts to restore these once abundent species to New England rivers are currently underway. Installation of fish ladders may be required of dam developers to help alleviate the problem, but they are very expensive. Thus a conflict exists between restoration programs and hydro development. Both these water uses are important to the state and merit consideration when deciding where and to what extent hydro facilities may be installed.

Recreation

Dam construction also limits activities such as white water canoeing, kayaking and rafting which require free flowing streams. At the same time however, flat water opportunities such as swimming and boating are increased. It is important to note here that rivers included in the National Wild, Scenic and Recreational Rivers System cannot be developed as they must be free flowing and barrier free. As with other stream flow problems, operations can be regulated so that releases of water correspond with peaks in recreation demand. Clearly a balance must be struck between the various recreation and energy benefits.

Displacement of Land Use and Habitat

New dams could potentially displace houses, industry, roads, agricultural land or forested lands. They also restrict the distribution of organisms and lessen the variability of habitat thus decreasing stability. Retrofitting of existing dams however, is likely to cause little additional disturbance. Use of these existing sites is likely to lessen both the social and environmental impacts.

Hydro Potential

The New England River Basins Commission has conducted a hydropower expansion study. It attempts to determine to what extent the region's dependency on foreign oil could be reduced by developing hydropower in economically and environmentally sound ways. Figures for Connecticut show:

21 hydropower dams currently operating
1488 existing dams not currently generating power
202 dams that could feasibly be developed
16-32 economically attractive sites depending upon interest rates for financing (14 percent - 6 7/8 percent respectively)

Social and environmental constraints could lower these figures somewhat. However, increasing oil prices also results in marginal sites becoming more economically attractive. In view of the costs and benefits involved, the study shows that hydropower deserves further consideration as a proven, clean and reliable energy source.

A state policy concerning hydropower is currently being formulated and several options are being looked at as means to develop this power source. For the most part smaller projects at existing sites appear most desireable. They are able to be developed more quickly and with less expense. These projects also offer the benefits of renewable, inflation proof energy production with less adverse environmental and social impact.

For example, many of the good development sites are located in eastern Connecticut, an area in need of economic development. Construction of hydropower facilities here would represent a long-term investment in inexpensive, reliable energy. This could serve to attract new business and industry to that part of the state or help sustain those suffering from inflated fuel prices. Any excess energy could also be sold to the utilities to further benefit the locality.

Development of the sites could also be undertaken by individuals as a business venture. The resulting energy could also be sold to municipalities, industries or to the utilities. Encouraging such investments would benefit both the people of the area and the state. A relatively inexpensive source of energy would result as well as diversification of supply and a decrease in foreign oil dependence.

Another option is for groups to undertake projects in a cooperative effort. This could help alleviate the sometimes prohibitive high initial capital costs. While these small scale projects are very unlikely to impact the statewide energy outlook in terms of capacity needed on overall rates, they will have important benefits. Those involved will have access to an inexpensive, independent energy source and valuable fossil fuel will be saved. In a region greatly affected by inflated oil prices every conservation effort helps.

Outlook

The state's role in promoting such projects would involve assisting and advising potential developers through the planning and permitting processes. To facilitate this, Connecticut is attempting to streamline

its requirements and the Federal Energy Regulatory Comission has likewise simplified its licensing procedures. The Office of Policy and Management, Energy Division will also continue to offer workshops on hydropower development for interested individuals, and the possibility of a state owned demonstration facility is being looked into.

As noted in the NERBC study the development of a number of potentially good sites depends upon the interest rates available for financing. Availability of low interest loans would greatly enhance the efforts to encourage hydro development. Similarly many states are also providing further economic incentives to developers by establishing attractive guaranteed rates for hte purchase of the energy produced by these projects.

Therefore any changes in legislation necessary to simplify procedures for developers, to ease financing difficulties, or te set attractive rates for energy purchase are encouraged. All efforts the state makes to promote hydro projects now represent a small but none-the-less significant investment in Connecticut's energy future.

SECTION 4: NOISE CONTROL

Sirens, traffic, airplanes, construction and barking dogs; these and other "everyday sounds" amount to what many people consider a nuisance. Noise in any form however presents a health and safety hazard above and beyond simple annoyance. In the words of former U.S. Surgeon General Dr. William H. Stewart, "calling noise a nuisance is like calling smog an inconvenience. Noise must be considered a hazard to the health of people everywhere".

The most common health problem associated with excessive noise is loss of hearing. Unlike other forms of hearing poblems, those due to noise are permanent and not correctable with hearing aids. Other infirmaties linked to noise through various studies are: high blood pressure, heart and circulatory diseases, increased cholesterol levels, liver damage, ulcers, low birth weight and birth defects. The stress brought on by excessive noise has also been associated with insomnia, learning disabilities in children, antisocial behavior and other physical and mental problems.

Noise is invisible however, and this makes its impact difficult to define. Therefore recognition of noise as a pollutant has been slow. Steps have been taken at the federal level to control noise through legislation such as the Occupational Safety and Health Act and the Quiet Communities Act, but few states or municipalities have followed this example.

In the early 1970's Connecticut was among the first states to institute noise control regulations. Sections 22a-67 and 22c-69 of the Connecticut General Statutes provide for a statewide program of noise regulation and require standards for major stationary noise sources. The Motor Vehicles Department is responsible for standards for moving sources. Noise limits are determined by land use category as follows:

Class A Noise Zone: generally residential uses or areas where serenity and tranquility are essential to the intended use of the land. (example private homes, religious facilities, and forest preserves.)

Class B Noise Zone: generally commercial in nature, areas where human

beings converse and such conversation is essential to the intended use of the land (example retail trade, educational institutions, government services.)

Class C Noise Zone: generally industrial where protection against damage to hearing is essential (examples manufacturing activities, transportation facilities)

Certain noises are exempt from these regulations however and tend to weaken the effect of the legislation. Among these exemptions are major noise contributiors such as construction equipment, airplanes, and farm equipment. The Noise Control Program is further weakened by staff shortages and budget constraints within the state.

For example, motor vehicle noise is the largest single source of noise pollution. Connecticut has two programs to deal with this. One involves enforcement of noise restrictions for motor vehicles. This effort began in the early 1970's but has been suspended due to budget constraints. Complaints concerning this type of noise are now referred to the local police department. In addition equipment and training in its use are available for localities to enforce the state regulations, unfortunately few areas take advantage of this opportunity. Thus the motor vehicle noise regulations are essentially ineffective. While funding may not be available to reinstate a statewide program, efforts should at least be made to assist towns with this specific problem to set up local programs.

The second program specifically addressing motor vehicle noise is the noise abatement program operated by DOT along interstate highways. This involves construction of noise barriers in places where traffic noise is 60 decibels or more at the building nearest the highway. Construction of these barriers is very expensive and only four or five are installed each year. The federal government however, pays 90 percent of the cost where federal money was used for the highway involved. Unfortunately the state relies heavily on this federal support and highways built with state money alone are ineligible and being neglected. Sections of the Connecticut Turnpike for example repeatedly register complaints significantly above the 60 decibel level yet barriers are placed in other areas first.

In addition many more requests come in for testing and barrier construction than can be handled by the four or five new barriers each year. The backlog is therefore prioritized with houses existing before the highway was built coming first and those constucted afterwards lower on the list. Unfortunately this program has temporarily been suspended as DOT staff was needed to work on other projects. It is expected to begin again in six months to a year. In the meantime there are 125 acreas being considered for barriers and requests and complaints are being taken now for testing when the program resumes. Clearly solving these already existing problems will take many years.

The expense to the state and the inconvienience and hazards to the citizens resulting from this particular noise problem are significant. It is our hope that present and future highway planning will keep this clearly in mind thus eliminating the need for retrofitting. The noise abatement program should also be reinstated as soon as possible with the most serious problems quickly addressed.

Currently there is one noise control program operating in the state. This is the EPA sponsored ECHO (Each Community Helping Others) program now in its second year of a three year, $105,000 EPA grant. ECHO's emphasis is on expanding local community involvement in abating noise pollution. Citizen volunteers are assigned to communities seeking assistance with noise problems that the volunteer is experienced in. The EPA and the Regional Noise Technical Assistance Center located at the University of Hartford also provide workshops, conferences, and other forms of back-up help.

In Connecticut the Noise Control Unit is responsible for administering this program. Towns are encouraged to adopt a noise control ordinance tailored to the specific needs of the area. Many communities are also urged to adopt the state motor vehicle noise regulations since no other means of enforcement exists. Equipment and training as well as assistance in developing an ordinance are provided to communities expressing an interest. Unfortunately out of Connecticut's 169 towns only four presently have noise control ordinances. The Noise Control Unit has a limited ability to handle complaints or conduct an active outreach program to communities with a staff consisting of two members. It is not unlikely that this program may be suspended, like many others, when federal funding expires next year.

In this case, Connecticut would be left with many unenforced noise control regulations in the books and a growing list of defunct programs aimed at alleviating this problem. If the state is unable to actively support these programs and enforce the regulations, assistance to localities should at least be maintained. Noise is nationally recognized as a threat to health and the overall quality of life. It deserves some attention in a state once considered a national model for anti-noise campaigns. The technology exists, all that is needed is a serious committment.

SECTION 5: RECENT ENVIRONMENTAL LITIGATION IN CONNECTICUT

During the last year or two, an increasing number of law suits based on environmental issues have been filed in Connecticut's state courts. Most of these suits have been based upon the CONNECTICUT ENVIRONMENTAL PROTECTION ACT (CEPA), particularly the provisions in Section 22a-16 and Section 22a-19. These two provisions of CEPA provide unique legal rights of equitable relief and intervention for Connecticut's citizens and organizations. Although these legal causes of action have existed since 1971, they have been used more frequently in recent years. There have been no floods of environmental lawsuits and many of the suits filed to date have been won on the merits by the public plaintiffs. It is clear upon review that the Environmental Protection Act provides a needed legal tool to protect Connecticut citizens and the public trust in the air, water and other natural resources of the state. A brief review of the pertinent statutory language and some recent case holdings may help demonstrate the usefulness of these remedies in preventing the unreasonable pollution, impairment or destruction of our environment.

In brief, Section 22a-16 provides that the Attorney General, any person, corporation, association, or other legal entity may file an action in Superior Court against the state, any person, corporation, association, or other legal entity in order to prevent the unreasonable pollution,

impairment or destruction of the public trust in the state's air, water and other natural resources. This Section, as well as a similar provision of the Inland Wetland and Watercourses Act (IWWCA), Section 22a-44b, were the basis for decision in Housatonic River, et als v. General Electric Company (6 CLT No. 23, June 9, 1980). This case of first impression was filed by Connecticut private citizens and environmental associations and alleged that the defendant corporation had discharged toxic PCB chemicals (polychlorinated biphenyls) into the Housatonic River, thereby creating a health hazard and environmental threat. The fact situation is particularly interesting because the point of discharge was located in Pittsfield, Massachusetts and the defendant corporation claimed that the two environmental statutes had no extraterritorial effect. Furthermore, the General Electric Company contended that the plaintiff lacked standing under the two acts.

The court denied the company's motion to dismiss the suit and upheld both the plaintiff's standing and the extraterritorial power of the statute. The legislature had clearly granted standing under CEPA to "any person" and the court stated that the "...effective control of pollution requires enlisting the aid of the entire citizenry". The court went on to hold that the legislative intent of CEPA was to prevent the pollution of Connecticut's resources due to activities within or without the state's borders, provided that the defendant's contact with the state was sufficient support inpersonam jurisdiction. Since the defendant corporation had its headquarters in Fairfield, Connecticut, and transacts a high volume of business here, it was held to be responsible for its acts beyond the state's borders which caused damage within the state. The court reasoned that "... only by allowing private citizens to reach any activity which unreasonably pollutes Connecticut's natural resources will they be afforded the adequate remedy mandated by Section 22a-15".

This landmark decision by Judge Saden added new vitality to the citizen suit provisions of CEPA and the IWWCA, making it clear that the statutory intent of the two acts would be interpreted by the court in a fashion that would provide an adequate remedy under the mandates of the legislature. The issue of standing under these two acts was greatly clarified by this decision and should not be much of an obstacle to citizen plaintiffs in the future.

The intervention provisions of Section 22a-19 provide that any person, corporation, association or other legal entity may intervene as a party in any administrative, licencing or other proceeding, upon the filing of a verified pleading which asserts that the administrative proceeding involves conduct which has, or which is reasonably likely to have, the effect of ureasonably polluting, impairing, or destroying the public trust air, water, or other natural resources of the state. This special environmental right of intervention allows Connecticut citizens and organizations to become parties directly involved in the proceedings. This section has been found to apply to a wide variety of administrative boards and commissions, including local planning and zoning commissions, environmental protection boards and conservation commissions. This right of intervention has been used successfully by a number of citizen plaintiffs and public interest organizations. One such organization, the Connecticut Fund for the Environment, Inc., (CFE) has used this legal tool to become involved in a number of controversial environmental matters. This statutory right of intervention was the basis for the suit filed in Citizens Fund for the Environment v. City of Stamford (6 CLT No. 20, May 19, 1980).

The CFE case involved a proposal to construct a United States Postal Service regional mail distribution center and an office complex on a unique coastal wetland site located on the Stamford/Greenwich border. The postal service and its agents had applied for a permit from the Stamford environmental protection that would allow the development of the wetlands area. CFE and the Better Neighborhood Association of Stamford intervened in the permit proceeding under Section 22a-19 and put on evidence opposing the proposed development. The plaintiff attempted to present evidence of air, noise and traffic pollution that would result from the proposal, but the board refused to admit the evidence. The plaintiffs alleged that these additional considerations were mandated by CEPA and they filed an appeal of the board's decision to grant the permit.

Before the case came to court on the merits, the defendants proceeded with the development plans and began site preparation work. The defendants bulldozed a number of accessways through the property, thereby destroying hundreds of trees and much vegetation in the wetlands system. The plaintiffs, upon learning of the destruction, filed for a temporary injunction to enjoin the defendants from any further site preparation activities while the initial appeal of the permit decision was pending. At the injunction hearing, the plaintiffs put on evidence that the bulldozing and blasting activities of the defendant had caused irreparable damage to the wetlands and argued that further intrusion into the area under the permit as granted would cause the total destruction of at least part of the area.

In reviewing the injunction application, the court examined the reasonableness of the Environmental Protection Board's (EPB) initial decision in light of the statutory requirements found in Section 22a-41. The court found that the EPB to consider the environmental impact of the proposed development, the short-term vs. long-term use of the property, and the degree of injury to, or interference with, safety, health, or the reasonable use of property which is caused or threatened. The court found that the State Statutes and the Board's own regulations required that evidence as to environmental effect must be accepted at the public permit hearing. The court held that the evidence offered by the plaintiffs regarding air, noise, and traffic pollution, should have been accepted by the Board, since those issues of public health and safety and environmental impacts were legitimate issues for termination. The court also held that the Board acted arbitrarily in refusing to accept the evidence by the plaintiffs and granted the injunction, halting the defendant from any further construction until the appeal on the merits was heard.

The defendants argued that, if an injunction was granted, a large bond should be required from the plaintiffs in order to reimburse the defendants if the plaintiffs' appeal was unsuccessful. In a precedent-setting discussion of Connecticut's environmental policies and Statutes, the court held that it would be "... an unreasonable burden to require him (a citizen plaintiff), or some of the non-profit organizations ... in this action to put up a bond, since in effect their function is to protect the environment for the benefit of all of the citizens of the state, thus helping to enforce the public policy of the state as set fourth in the Environmental Protection Act and Wetlands Act.

Due to the early environmental intervention by the plaintiff, the evidence they attempted to submit and the unique factual setting (i.e. irreparable damage had already been done to the wetlands), the court was presented with an excellent opportunity to review the environmental statutes and to define their broad policies. In examining the penumbra of environmental rights and remedies, the court recognized the interdependence of the various environmental and health statutes. The decision clarified the meaning of irreparable damage or destruction, and stated that environmental boards, in reviewing impacts, must examine the associatied issues of health and safety in order to fulfill the interrelated policies of the statutes. The CFE case will go to trial on the merits of the permit appeal sometime in the late Spring of 1981.

Environmental organizations have been instrumental in pressing the legal causes of action that presently exist in Connecticut's Environmental Statutes. Similar public interest and legal organizations are needed to provide the state's citizens and environmental organizations and opportunity to affordable legal council. For instance, CFE was instrumental in convincing the U.S. Attorney and the Environmental Protection Agency to file suit in a public water contamination controversy that occurred in Southington, Connecticut last year. The city of Southington maintained six drinking water production wells and three of those wells were contaminated with a variety of carcinogenic chemicals, including tetrachloroethylene, chloroform, trichloroethylene, dichloroethane, and carbon tetrachloride. CFE worked closely with the city residents, municipal officials, DEP, EPA and Department of Health in order to initiate the appropriate legal action. The organization provided much of the background research and data that was needed to initiate the lawsuit, filed by the U.S. Attorney on December 17, 1979 at the District Court in Hartford, Connecticut.

This case, United States of America v. Solvents Recovery Service of New England and Lori Engineering Company, was one of the first hazardous waste and water protection suits filed under the new Resource Conservation and Recovery Act (RCRA), which provides the Environmental Protection Agency with the authority to initiate lawsuits where hazardous wastes have been handled, stored, treated, or disposed of in a manner that presents an eminent and substantial danger to the public health or the environment. This suit is particularly interesting because it involves the new legal remedies outlined under RCRA and its progress through the courts will be followed with great interest by those interested in the issues of hazardous waste and aquifer protection.

A final case that may be of interest is Windham Sand and Stone, Inc. v. Stanley J. Pac Commissioner,(6 CLT No. 6, February 11, 1980). This suit was an appeal from a decision of the DEP, denying the plaintiff a permit under C.G.S. Section 25-54i(b) for a new discharge of materials into state waters. The permit was sought for the construction of a new landfill area along the Shetucket River in the town of Windham. The application was for a permit to discharge 22,500 gallons of leachate per day into the Shetucket River. The hearing examiner, after the hearing, recommended the approval of the permit. However, the commissioner of the DEP later refused to approve the permit application and denied the plaintiff a permit. The court found that the commissioner had the ultimate decision-making authority in the matter and had acted reasonably, based upon the evidence, in denying the permit. The decision also held that a Section 25-54i(b) appeal was exempted from the provisions of a Section 25-54p appeal, and was therefore governed by the Uniform Administrative Procedure Act.

Appendix

APPENDIX A

SUMMARY OF SUGGESTIONS FROM

DRINKING WATER CONTAMINATION MEETING

NOVEMBER 22, 1980

- All offenders creating contamination problems should pay the price of repairing the damages they caused.
- At the present time there are not enough funds for monitoring. More funds are needed for the future.
- A special purpose trust fund should be established for the Department of Health Services to contract out lab work to private labs. Private labs usually take less time. The source(s) of contamination should be billed.
- Funds should be pushed for a research grant program.
- Funding is needed for sophisticated testing equipment because citizen groups cannot afford this expense.
- The homeowners should be reimbursed by a tax reduction for the loss in value of their homes.
- A revolving special purpose trust fund for testing would provide a much needed investment of funds for the mutual benefit of everyone's future.
- There should be careful monitoring of toxics to avoid illegal waste dumping.
- Better enforcement is needed for the many good laws already in existance.
- More information should be gathered to find out exactly what certain chemicals can do.
- The possible health effects of toxic chemicals to children should be investigated.
- More information concerning contamination is needed by agencies and citizens involved.
- Alternative sources of water should be established for emergencies.
- Funding for an attorney for the Department of Environmental Protection should be provided so the problem can be fought with enforcement.
- In order for the Hazardous Waste Unit to function properly, it needs more funding for equipment, staff, and cars.
- The Environmental Protection Agency should do the water testing.

- Both the Department of Environmental Protection and the Department of Health Services need more sophisticated apparatus for monitoring and policing possible and known sources of contamination.
- Because procedures are difficult on the state level, the responsibility of acting as a liaison between the Department of Environmental Protection and the local level should be that of the local sanitarian.
- Streamlining should be done to condense the length of time needed by the Attorney General's office to complete its efforts.
- There is a need for better coordination among local, state, and federal levels.
- A regional person to deal with the local levels is needed because it is felt by citizens that the Department of Environmental Protection and the Environmental Protection Agency are too far away.
- There should be a phone number established with someone there to give immediate attention to the problems of contamination.
- The Commissioner of the Department of Health Services should appoint an officer in charge of a central phone and file to coordinate citizens and eliminate the panic that generates when there is no one to contact immediately.
- Field staff of state agencies should have more decision making authority.
- Separate agencies are working well but when it comes time to coordinate things fall apart. Better coordination is needed among agencies.
- Civil Prepardness should provide the affected parties with alternative sources of water.
- If the state Department of Health Services is not handling the problem then the local Health Department should become responsible.
- Towns should own the water supplies within them and take full responsibility for them.
- The requirements of the law should be given to the local operators in simple terms "plain english" so that they can carry out their duties more swiftly and efficiently.
- There is no way to enforce so many laws. Some laws could be abolished.
- Surface water should be treated the same as ground water.
- There should be permits required for both the repair and installation of septic systems.
- There is a need to have citizens and local officials become aware of the law under the Health Code that does require the application for repair to septic systems, 19-13-B20c (e), so that violations will be discontinued.
- "The 1974 task force" in reviewing the Health Code, concluded that the Health Code needed to be strengthened concerning the specifications for the installation of septic systems over ledge rock.
- Law protection in hands of purveyor - no teeth in drinking water laws.
- Better local response to the problems of contamination is needed.
- Towns need trained sanitarians who know what should be done in an emergency.
- The local inspectors employed by water companies should be certified.
- Abatement orders should not be changed in any way without the opportunity for the public to have some input.
- We need new alternatives to putting our garbage into the ground.
- A safe hazardous waste site is needed for the benefit of all.
- Constructive ideas for the future need to be formulated to provide successful solutions to the problems of contamination.
- No more studies are needed. It is time for common sense and planning.
- Periodic inspections of septic systems are needed.
- The building of homes over flood plains with no sewers must be stopped.
- The river vally flood plains charge the surrounding aquifers. Therefore, the same strategies should be used for protecting the ground water as are used for the protection of reervoirs.
- A systematic survey of industry is needed to indicate the impact of discharge during low flow periods.
- Drinking water should be a number one priority.
- New approaches are needed. We should start with surface water, at least we can see that. This would be an easier and more sensible place to start.
- State and local response to the problem is satisfactory but their effectiveness needs improvement.
- The importance of media and citizen pressure should be recognized for active involvement by our decision makers.
- A subtle awareness plan designed to educate not create panic is necessary to attain the important aspect of foresight.
- More education and workshops concerning toxics are needed.
- We need secure hazardous waste facilities. There should be a siting board with the power to override local opposition if their decision is in the best interest of everone.
- The confidence from local residents concerning the safe siting and management of a hazardous waste facility must be obtained.

APPENDIX B

STATE OF CONNECTICUT

COUNCIL ON ENVIRONMENTAL QUALITY

Connecticut Council on Environmental Quality Policy Statement
Regarding Municipal Aquifer Protection

WHEREAS: The Connecticut Council on Environmental Quality has received inquiries and complaints from concerned citizens about drinking water quality and has recognized the importance of protecting our state's underground water supplies;

WHEREAS: The legislature has also acknowledged this crucial environmental issue by the recent passage of Public Act 80-327, "An Act Concerning Municipal Aquifer Protection";

WHEREAS: The local governments, through the authority vested in the Planning and Zoning Commissions, have been given a vital role in developing regulatory measures at the local level which will protect these irreplacable water resources;

WHEREAS: There presently is a serious lack of information about these underground water supplies and on-going planning efforts should be supported;

THEREFORE, the Connecticut Council on Environmental Quality makes the following recommendations:

1. Every effort should be made to support and more effectively coordinate the various existing programs which deal with water supply quality.

2. The Regional Planning Agencies must continue to inform the local agencies of the existance and status of aquifer information that applies to the particular regions.

3. The Council should attempt to facilitate these coordination and information efforts by:

   A. Maintaining contacts with the various agencies involved in the research and planning processes;
   B. Requesting to be kept informed of program developments and/or recommendations;
   C. Contacting Planning and Zoning Commissions in certain particularly affected areas of the state, in order to assist and encourage the adoption of municipal aquifer protection regulations.

4. The Council should publicly stress the importance of these fragile resources by including an in-depth overview of the existing regulatory efforts in the 1980 Council on Environmental Quality Annual Report. Efforts should also be made to inform the citizens generally of the issue.

APPENDIX C