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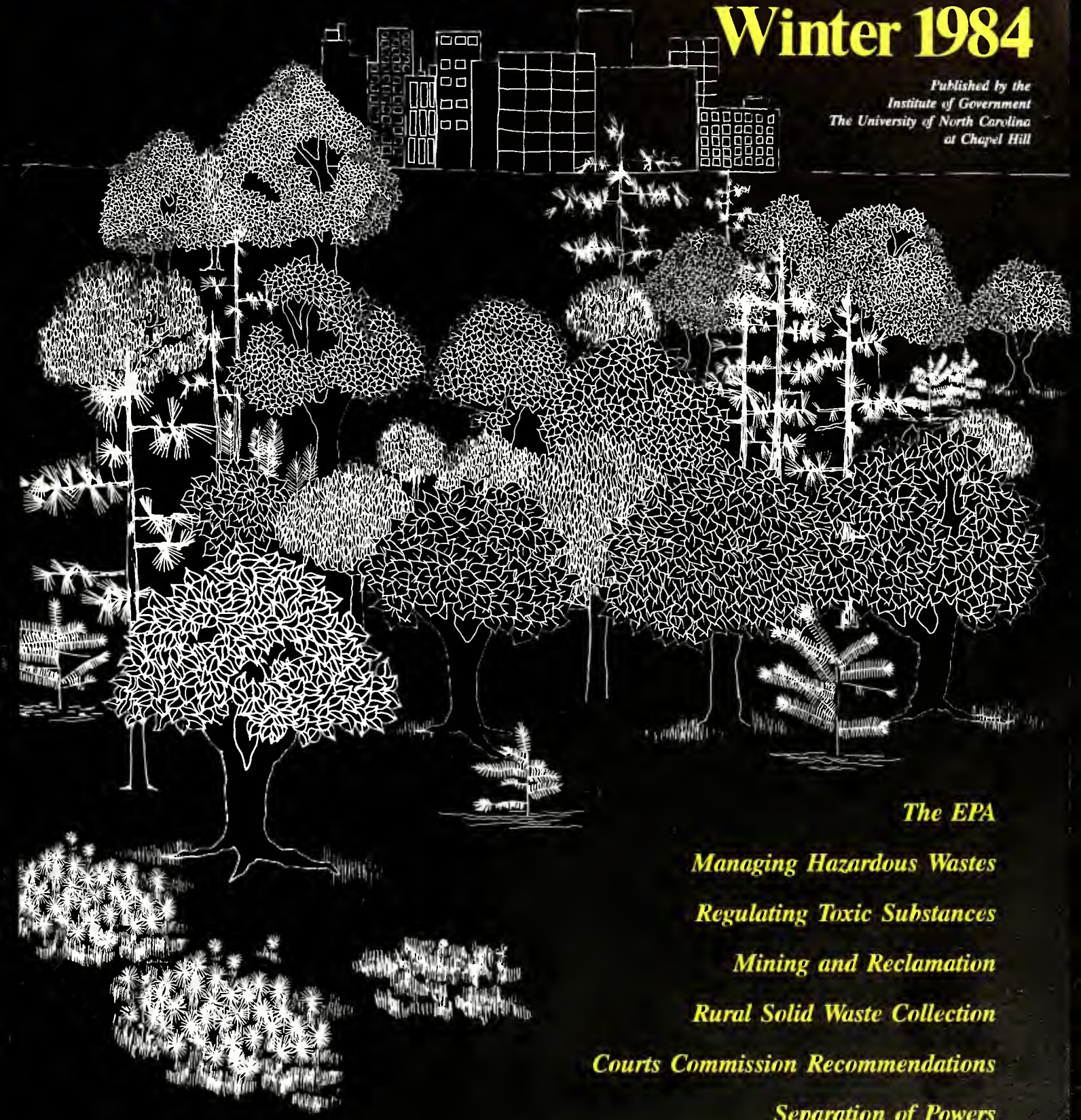

The EPA

Managing Hazardous Wastes

Regulating Toxic Substances

Mining and Reclamation

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The Environmental Protection Agency: Re-establishing Its Credibility

Douglas Costle

Rapid change is both a characteristic of our society and a commonplace of our rhetoric. Every now and then, though, someone has something fresh to say about it. "You know the times are changing," a banker told an audience some time ago, "when you see the railroads dying, and the buffalo herds multiplying." Last year, a retail store executive—responding to the deepening recession—expressed his reaction in a pungent metaphor that captured a widespread mood among many businessmen. "The horn of plenty," he said, "is blowing taps."

Well, I don't think the horn of plenty is blowing taps. But it is, perhaps, playing a different tune from the one we have been accustomed to the last twenty years. It seems that in every aspect of our economic life, the times are indeed changing. A period of easy abundance for the middle class—brought to us by cheap energy, inexpensive raw materials, and a heritage of American industrial superiority—appears to be ending. The real impact of change depends on how accurately we interpret what is going on in our country and in our world, and how we respond. The horn that sounds a requiem for a passing era may also be announcing reveille for a new one.

There are any number of useful places to start when examining change. Let me begin by talking about something I am familiar with—government regulation in general and environmental regulation in particular. Modern regulation dates back at least to 1839, when the Steamboat Inspection Service was established. In the intervening decades, Congress added such agencies as the Interstate Commerce Commission, the Securities and Exchange Commission, and the Federal Communications Commission. Yet such expansions of federal regulation in the past seem sluggish when compared with the expansions of the last decade. At least 20 major federal regulatory agencies have been established since 1970. When the *Federal Register*—the compendium of government regulations—was first published in 1936, it ran to 2,411 pages; the 1979 version totaled 61,261 pages. The federal government today has about 90 regulatory bodies that issue some 7,000 rules each year. It is not in the least surprising, then, that some corporate executives bitterly denounce the extraordinary array of laws and regulations passed in the last decade to govern in-

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This article was adapted from a paper presented at the First Annual North Carolina Environmental Affairs Conference held at the Jane S. McKimmon Center in Raleigh, North Carolina on May 11 and 12, 1983.

The author was formerly Administrator of the Environmental Protection Agency. Since he left the Environmental Protection Agency in January 1981, Mr. Costle and several colleagues have founded the Environmental Testing and Certification Corporation (ETC). Located in Edison, New Jersey, ETC is a state-of-the-art laboratory that specializes in the independent testing, analysis, and interpretation of environmental data to determine the content and levels of chemicals in air, soil, and water. It serves federal, state, and local governments as well as private industry.

Mr. Costle is also counsel to the law firms of Wald, Harkrader & Ross in Washington, D.C. and Updike, Kelly & Spellacy in Hartford, Connecticut. His areas of interest include environmental and general regulatory policy, particularly in the health and safety field. He is an Adjunct Lecturer in Public Policy at Harvard University.

dustrial activity. Beyond their predictable opposition to it on the basis of cost and frustration, however, I suspect they are stunned by it. Why so much regulation so suddenly?

One popular explanation, occasionally favored by some corporate advertisers, is a sort of "devil" theory. It holds that the Washington bureaucracy is simply running amok with the narcotic of power and wishes to expand its domain. Another is that this is a legislative age that believes the answer to every human problem is a new law. Having expanded civil rights, workers' rights, consumer rights, and women's rights, the government is seeking more votes by caving in to every activist group with access to a Xerox machine. Put these groups together, the critics say, and you have an antibusiness coalition that threatens—in the time-hallowed cliché—to "kill the goose that laid the golden egg." Yet such interpretations, persuasive as they sometimes sound, miss the real truth. That truth, I believe, is that expanded regulation has not been forced on us by a power-hungry government or by do-gooders who "have never met a payroll." Rather, it has been imposed on us by an interlocking set of events whose cumulative effect we have yet to appreciate fully.

Among the most significant of those events is the postwar chemical revolution. Until 1940 or thereabouts, the pace of change in chemical development was slow. Most of the chemicals in common use were derived from naturally occurring materials—principally minerals and plants. Each of them had been "screened" by the physical and historical environment: three million years worth of human beings had learned, through trial and error, which of these materials were edible, useful, or dangerous. Some of those errors were fatal. Documented cases of sterility and permanent mental damage in ancient Rome have been traced to lead poisoning: that useful but toxic substance leached into drinking water from lead pipes used in the aqueducts. The Mad Hatter in *Alice in Wonderland* was not entirely a product of Lewis Carroll's imagination: his real-life exemplars—workers in nineteenth-century hat factories—incurred neurological disorders by inhaling the mercury used to treat furs and felts. In the early decades of this century, female workers were permanently harmed by the radium they painted on clock faces to make them luminous.

Thus health damage from chemicals is not a modern phenomenon. In the past, however, the natural origin of most chemicals and man's long experience with them gave us ample warning of their dangerous side effects. Since World War II, our chemicals industry has developed synthetic substances that we have never encountered before. Among them are thousands of chemicals that save lives, increase agricultural productivity, and improve our standard of living. But among them, too, are chemicals whose side effects we did not anticipate and could not judge for years: thalidomide, DES, PCBs, and DDT, to cite only a few. Unlike their predecessors, these chemicals had not been subjected to the evolutionary testing processes of the environment and human experience.

Compounding the problem posed by the novelty of these substances was the *rate* at which we introduced them. As recently as 1971, about two million synthetic and natural compounds were known; twelve years later, five million such compounds are known. Some 45,000-50,000 are in commercial distribution (not counting another several thousand pesticides), and it takes a team of pathologists, 300 mice, two to three years, and about $600,000 to determine whether a *single* suspect chemical causes cancer—let alone whether it causes chronic neurological disorder or genetic damage, or affects reproductive capability. The quantity of synthetic chemicals produced annually has grown from 1.3 billion pounds in 1940 to 49 billion in 1950, 96.7 billion in 1960, 230 billion in 1970, to 320 billion in 1978. But such evangelism is rare. The much larger truth is that a big society—made so by technological change—has spawned problems that none of us, in government or industry, could have anticipated. Who in 1945 could have guessed that millions of human beings spraying deodorants in their bathrooms might erode the ozone shield? Who in 1950 could have guessed that sulfur and nitrogen oxides rising from one nation might fall in another nation as acid rain, slowing forest growth, impoverishing soil, and killing lakes? In the broader social and political sphere, who in 1960 could have predicted that nations would quarrel furiously over rights to mineral deposits on the ocean floor or invisible communications channels in the skies?

Government has not manufactured such issues to justify regulation. Despite its constant imperfections and occasional excesses, regulation is a necessarily hasty effort to improvise—often in the face of scientific ambiguity—protection against forces novel to our history and often utterly strange to our earth. The sudden increase in regulation stems from four phenomena:

—First, population growth without precedent in the history of our species. It is generally estimated that we humans did not number one billion until 1830 A.D. After that, it took only another century—until 1930—for us to double our number to two billion. Fifty years later we have doubled again. Today there are more than four billion of us, and we will add another billion by 1990. Population growth that required three million years has, in our lifetimes, been telescoped to fifteen. Before the turn of the century, it may be further telescoped to seven years.

—Second, technological change has magnified the size and scope of our tools beyond the wildest imaginings of any medieval Faust. In 1945, the largest oil tankers had a capacity of 18,000 tons; in 1978 the *Amoco Cadiz* all by itself dumped 220,000 tons of oil—the equivalent of more than a dozen pre-war cargoes—off the coast of Brittany. That is roughly enough oil to supply New England's entire oil-based electrical energy-generating needs for a whole day.

—Third, as I pointed out in connection with chemicals, a high proportion of our modern substances are synthetic. Some of these substances are ecologically benign and cause no problems whatever; others not only persist in the environment but destroy natural organisms that since time immemorial have been breaking waste down and recycling it into nutrients for further growth.

—Finally, we are dealing with accelerated pace—the astonishingly brief span, on the order of 35 years, in which so many massive changes have been introduced to our five-billion-year-old-habitat. Had they occurred separately and been spread out over centuries, such changes could probably have been accommodated through natural evolution and human adaptation. But coming both swiftly and simultaneously, they magnify each other's effects in an often devastating synergism.

The convergence of these four factors—rapid population growth, the scale of human tools, the ecological strangeness of our synthetic compounds, and the pace of their combined assault—heightens the possibility that some damage to ecosystems will be irreversible. It would be attractive to argue that the variety of federal regulation on the books today stems from the superior wisdom of Congress and various administrations in perceiving these global threats. It would also be utterly inaccurate. Actually, only one law—the National Environmental Policy Act of 1969—specifically mentions the interrelationship of the factors I have mentioned and urges a comprehensive approach to them all.

In virtually all other cases, regulation—whether economic or health and safety or environmental—has grown piecemeal, in response to one threat at a time—often with a newly hatched bureaucracy to administer it. Moreover, as has frequently been remarked, industries that at first opposed regulation often came to manipulate it to protect themselves, and so to like it—as witness the recent bitter opposition of the trucking industry to deregulation. Since no one was keeping an eye on the cumulative effect of regulation or the ways in which it could be perverted, many inconsistencies, contradictions, and even absurdities grew up. For example:

—Hospitals in Baltimore were required by federal regulations to keep the water in patients' rooms at 110 degrees or less; but they were required by city law to keep the water 110 degrees or more.

—A meat-packing plant was told by one federal agency to wash its floors several times a day for cleanliness ... and was told by another federal agency to keep its floors dry, so that employees would not slip or fall.

—An unregulated trucker could haul railroad ties if they were cut from logs that were sawn crosswise; but if he wanted to haul logs that were sawn lengthwise, he had to get a certificate from the Interstate Commerce Commission. Similarly, an unregulated trucker could haul riding horses to be used for personal pleasure, but not race horses; whole wheat, but not wheat germ; and parrot food, but not hamster or gerbil food.

At the same time, regulation has often served to stabilize, save lives, and provide other protections. For example:

—In 1933, bank failures ran at the rate of 40 per cent; since then, because of federal requirements, the failure rate has dropped to less than 1 per cent, and not a single small depositor has lost a cent in the failure of a federally insured bank.

—The federal safety standard for infants' cribs became effective in 1974; since then, crib deaths by strangulation have fallen by half, and injuries have fallen by 45 per cent.

—According to the General Accounting Office, federal regulations for motor vehicle safety—seat belts, interior padding, and stronger doors—saved 28,000 lives between 1966 and 1974. That figure does not include the lives saved by lowering the speed limit in response to the energy situation.

The beneficial effects of some federal regulations do not, of course, excuse the foolishness or the unnecessarily expensive effects of others. Improvisation does not stop when the ink dries on a new law or a new regulation. Yet we must recognize that *some* red tape may be worth the cost . . . and that the failure to impose needed regulation today can cost us much more in the future.

The Love Canal disaster could have been prevented by the investment of $4 million during the 1950s; so far, it has cost the State of New York over $30 million, and the company involved faces damage suits that total billions. A while ago, midnight dumpers sprayed PCBs along roadsides in North Carolina. Proper handling of that waste would have cost about $100,000; instead, the state had to dig up the contaminated soil and bury it in a landfill at a much higher cost. And the Kepone incident in Hopewell, Virginia, could have been avoided for an investment of $200,000. So far, judgments against the chemical company involved total $12 million; damage suits have been settled out of court for an additional but unknown sum; and EPA scientists estimate that it would cost several billion dollars to clean up the James River—if indeed it *can* be cleaned up. From an excessive zeal to repeal regulation today, we may create nightmares for ourselves tomorrow—and have to pay a much higher price to recover from them. Out of a misguided sense of thrift, we can "save" ourselves broke.

When I was Administrator of the federal Environmental Protection Agency, an agency scientist brought me the test results on a major midwestern city's water supply. The tests revealed trace amounts of over 700 chemicals. I asked whether the water was safe to drink. To paraphrase his response, "We don't know that the water is unsafe to drink; but we can't say that it is safe, either." He explained his careful answer: Because the science of determining health and environmental effects of the thousands of chemicals common in today's society was (and still is) in its infancy, a definitive answer was a long way off. Particularly notable was his cautionary observation that there was no quick way to learn. Tests had not yet been devised to forecast accurately the latent or long-term effects of exposure to most en-

vironmental contaminants. Moreover, EPA had to decide whether investing in expensive and potentially fallible technology would be a prudent or affordable insurance policy against our ignorance on the broad issue of whether the water was safe to drink.

All of which brings me to the current situation at EPA. I told the story about drinking water principally to illustrate what people familiar with environmental issues know: Most EPA decisions involve "judgment calls." Scientific evidence is hardly ever free of ambiguity. In our complex industrial economy, the environmental unknowns are often greater than the knowns. Almost all of EPA's decisions have significant economic consequences, as well as public benefits. EPA must weigh these costs and benefits—bringing to bear the best scientific knowledge that can be assembled—and make judgments that are informed by a toughness of mind, a commitment to getting the job done, and a passion for objectivity and fairness.

Somehow during its first 10 years, amid all the controversy over specific issues, EPA maintained remarkable credibility in making the difficult judgments delegated to it. While Congress, the states, the public, industry, and the press may at times have disagreed with individual decisions, I believe they perceived the agency as conscientiously pursuing the public interest. During that decade, three consecutive administrators—two Republican and one Democratic—ran this process as fairly and nonpolitically as they could. All three enjoyed strong bipartisan support in Congress, and the agency remained remarkably free from even the scent of scandal or special privilege. In short, it was a credible agency. To the dismay of almost everyone, that credibility was seriously eroded several months ago. Allegations of mismanagement, political manipulation, sweetheart deals with polluters—even perjury by presidential appointees—mounted until a reluctant President had no choice but to clean house and bring in a new team. In naming William D. Ruckelshaus to replace Anne Gorsuch Burford as EPA Administrator, the President has taken a giant step toward restoring EPA's credibility. This selection has been widely hailed, and rightly so. Ruckelshaus has earned a solid reputation as a public servant of high integrity, intelligence, and fairness. His appointment and immediate pledges of honesty, balance, and full implementation of the nation's environmental laws already have elevated EPA employees' morale—a laudable and necessary first step, because its employees always have been the backbone of the agency's competence and professionalism.

In addition to the legislative agenda, the new Administrator must act to re-create EPA's research program, which has been systematically decimated during the past two years. It cannot now provide an adequate impartial scientific underpinning for the increasingly complex and ambiguous decisions that the agency will confront as it enters a new decade of health and environmental safety issues. Research programs, like Humpty Dumpty, cannot simply be put together again. Re-creation will involve time, personnel, and funding.

Similarly, the now nonexistent enforcement program must be rebuilt, after suffering from four chiefs, three reorganizations, and the forced departure of many of its professional staff. In fact, industry will be a major beneficiary of a rebuilding: no businessman has a more legitimate grievance than the one who has spent money and effort to comply with environmental requirements—only to watch less scrupulous competitors go scot-free.

Foremost in the public mind, after recent allegations of wrongdoing, is the necessity to put the "Superfund" program to clean up toxic waste sites on a credible basis. The program is in its infancy; it needs guidance and nurturing. It will not mature overnight, and Ruckelshaus will need public understanding and support as he moves to correct whatever may have been wrongly done and to strengthen what is solid.

To accomplish these restorative measures, the new Administrator will need strong presidential backing. The President has apparently given him two important commitments: direct access to him (rather than through the Secretary of the Interior) and a free hand in selecting his top personnel. As yet, however, the crucial question of resources—adequate staffing and funding for the entire agency—remains unanswered. If the (in my view) mindless budget-cutting of the past two years continues, Ruckelshaus's efforts will be doomed. This is not an argument for open-ended increases for EPA—throwing money at the agency will not solve its problems, but selective increases in resources are essential if restoration is to be successful and therefore credible.

Ultimately, credibility depends on both the reality and the perception that the Administration is conscientiously looking at all sides of an issue to come up with the best decision. At present, neither Congress nor the public has

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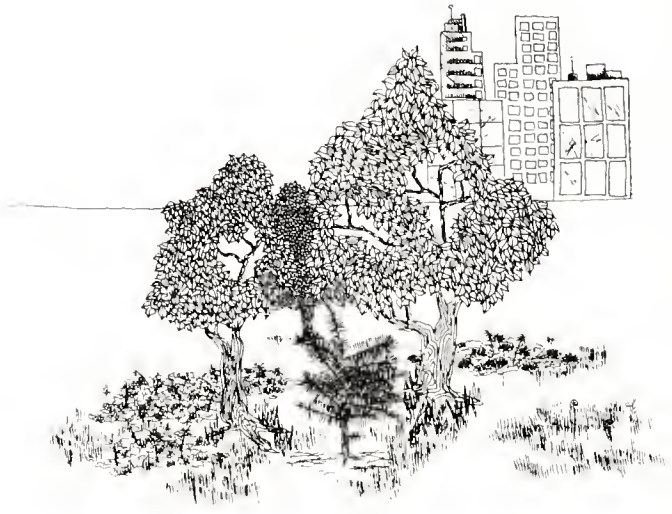

Hazardous Waste in North Carolina—

Management Strategies and Research and Education Needs

Terrence K. Pierson, Richard N. L. Andrews, and Jonathan B. Howes

North Carolina, like many other states, has placed a high priority on the safe management of hazardous wastes. Although media attention has primarily focused on the catastrophes that have occurred in North Carolina—like chemical spills, illegal dumping, and clean-up operations—the state has taken a positive approach to the regulation of hazardous wastes. For example, its regulatory agency, the Solid and Hazardous Waste Management Branch of the Department of Human Resources (DHR), was one of the first state agencies to be authorized by the Environmental Protection Agency (EPA) to administer Phases I and II of the federal hazardous waste management program. This means that North Carolina has established a "manifest" system to track waste from its generation to its ultimate disposal and that the state agency has the authority to issue (or deny) operating permits to hazardous waste management facilities other than landfills.[1]

Since present North Carolina law provides that state regulations may not be more restrictive than the federal regulations, the state hazardous waste regulatory program so far is essentially the same as the federal program.[2] The state has quickly sought the authority to administer the federal hazardous waste regulatory program by adopting the entire federal program. But this course has its drawbacks. For example, the federal government's manifest waste-tracking system does not require that a copy of the manifest be filed with the regulatory agency. In addition, the federal regulatory program has not required generators and disposers of hazardous waste to file annual reports on the types and volumes of wastes they handle. Revised federal regulations will require that large generators file biennial reports beginning in 1984, but thus far—without information from the manifest system—DHR has lacked critical information for planning and managing hazardous wastes.

The existing data base

In 1982 and again in 1983 the Solid and Hazardous Waste Management Branch surveyed the state's major generators of hazardous wastes.[3] Although only firms that generate more than 2,200 pounds of hazardous wastes per month were included in the survey, the data that were gathered provide the state's first reasonable measures of the types and volumes of wastes generated in the state and how these wastes are being managed. Almost 95 per cent of the large generators and 99 per cent of the firms that operate treatment, storage, and disposal facilities responded to these voluntary surveys. Approximately 400 million pounds of hazardous wastes were generated in 1981 by the 806 large generators in the state,[4] substantially less than DHR[5] and EPA[6]

This article was adapted from a paper presented at the First Annual North Carolina Environmental Affairs Conference held at the Jane S. McKimmon Center in Raleigh, North Carolina on May 11 and 12, 1983.

Mr. Pierson is now with the North Carolina Board of Science and Technology. Professor Andrews is Director of the Institute for Environmental Studies at the University of North Carolina at Chapel Hill, and Professor Howes is Director of the Center for Urban and Regional Studies at UNC-Chapel Hill.

1. States were not eligible to administer the permit program for land disposal facilities until June 26, 1983, because the federal regulations were not completed until January 26, 1983. See 47 FED. REG. 143.

2. N.C. GEN. STAT. § 130-166.21D.

3. *North Carolina 1981 Report of Hazardous Wastes: Generated, Stored, Treated or Disposed* (prepared by the Solid and Hazardous Waste Management Branch, North Carolina Department of Human Resources, Raleigh, N.C., July 16, 1982).

4. Tracor Jitco, *An Analysis of North Carolina's Industrial Waste* (prepared for the North Carolina Hazardous Waste Management Board, February 17, 1983).

5. A 1978 report by the Solid and Hazardous Waste Management Branch of DHR estimated that 120 million gallons of hazardous waste are generated annually in North Carolina. See *Hazardous or Difficult to Handle Waste* (Raleigh, N.C., October 1978).

6. The U.S. Environmental Protection Agency, which ranks North Carolina eleventh nationally

had previously estimated. About 65 per cent of these wastes were treated or stored at the site of generation, often in unlined pits and ponds.[7] The remainder was managed by commercial off-site facilities. Some 13,000 tons were shipped out of state to landfills; approximately 29,000 tons were managed by the five solvent-recovery facilities and two commercial incinerators in North Carolina; and the remaining 25,000 tons were shipped to treatment facilities in other states.[8]

In 1982 the number of large generators of hazardous waste in the state had decreased to 618, but the amount of waste generated had increased to 6.2 billion pounds. This is due partly to EPA's classification of additional waste streams as hazardous and partly to an increase in economic activity. Over 99 per cent of this waste receives some type of treatment on site. Approximately 38,500 tons (WMT) are shipped to out-of-state commercial hazardous waste facilities, and 20,000 tons (WMT) are shipped to treatment facilities in North Carolina.[9]

The information provided by the survey of large generators suggests that North Carolina does not have a serious hazardous waste problem. First, the survey indicates that most of the wastes are being managed by the generators themselves, presumably in a manner that either does or soon will meet federal and state regulations. Second, the waste that is being managed off-site is transported to EPA-approved facilities either in-state or out-of-state. Third, the survey clearly indicates that the amount of waste that comes under state regulation is substantially less than earlier DHR estimates indicated. Fourth, substantial amounts of waste are no longer subject to regulation. An example is EPA's delisting of 1.3 billion pounds of sludges resulting from a methanol production process.[10] Fifth, there are also indications that many firms are reducing and treating their own wastes, thus reducing the demand for services by commercial hazardous waste management facilities.

In view of this information, it is not clear why North Carolina is considered a desirable location for large commercial hazardous waste management facilities, unless the reason is the state's convenient location for the large multi-scale area that surrounds it. Since 1980 three companies have attempted to site large waste management facilities in North Carolina. In 1980 SCA Chemical Services proposed a multipurpose treatment and incineration facility in Charlotte to handle 400,000 gallons of hazardous waste annually.[11] In 1981 Chemical Waste Management Incorporated proposed converting an aging Western Electric waste treatment facility in Greensboro into a volume-reduction center to handle at least 100,000 gallons of hazardous waste annually. During the past year this same company had been searching for a commercial land disposal site in Chatham, Lee, and Moore counties. Recently it announced that it had given up this search. Also, Chem-Securities Systems has been trying to site a commercial land disposal facility in Anson County for the past year but recently withdrew its proposal. Chem-Securities Systems and Chemical Waste Management are now owned by the same parent company—Waste Management, Incorporated. At present only the facility proposed by SCA Services has been issued a construction permit—though the court action triggered by the issuance of the permit is still going on.

It appears that the waste management firms that have considered locating facilities in North Carolina have done so on the basis of criteria other than the amount of waste now being shipped to commercial facilities in other states by large generators in North Carolina. This point especially applies to proposals for land disposal facilities, since the amount of waste now being shipped to off-site landfills is substantially less than the annual capacity of most large commercial landfill operations. For example, the largest Class I landfill[12] in California handles about 350,000 tons of hazardous wastes per year. Each of the four other Class I landfills in California handles between 60,000 and 150,000 tons of hazardous wastes annually.[13] This suggests that the firms that are contemplating disposal facilities in North Carolina either are aware of larger volumes of waste being generated in the state that are not accounted for in the survey of large generators or expect to handle substantial quantities of waste from outside the state.

Information needs

Clearly, the information on the types and volumes of hazardous wastes being generated in the state needs to be expanded if it is to be useful for planning and management purposes. The surveys conducted in 1982 and 1983 by DHR were voluntary and included only industries that generated more than 2,200 pounds of hazardous waste per month. In August 1983, realizing the need for additional information, the North Carolina Commission for Health Services adopted new rules that require annual reports for hazardous waste generators, treaters, storers, and disposers rather than biennial reports as currently required by the federal EPA. Such records will give some indication of how these larger generators are responding to their new responsibilities for managing hazardous wastes, the effects of state management policies on these generators, and the corresponding changes in needs for new facilities.

Since a large percentage of the hazardous waste generated by these firms is being managed on site, more information is needed on the adequacy of on-site treatment and storage practices. There is some indication that many of the on-site management practices do not meet current regulatory requirements and should be upgraded or stopped. Improperly stored wastes are a potential source of additional demand for off-site commercial services.

Small generators—those that generate less than 2,200 pounds per month— are thought to be a significant source of de-

in the generation of hazardous waste, estimates that the state produces 1.8 million tons of hazardous waste annually. See U.S. Environmental Protection Agency, *Hazardous Waste Background Document* (Washington, D.C., August 1980).

7. Solid and Hazardous Waste Management Branch, *op. cit. supra* note 5.

8. Tracor Jitco, *op. cit. supra* note 4.

9. *North Carolina Hazardous Waste 1982 Annual Report* (prepared by the Solid and Hazardous Waste Management Branch, North Carolina Department of Human Resources, Raleigh, N.C., July 1, 1983.)

10. *Ibid.*

11. Cited in Terrence K. Pierson, "State and Local Hazardous Waste Management—A Framework for Action?" *Carolina Planning* 7, no. 1 (Spring 1981).

12. A Class I landfill in California is licensed to handle most types of hazardous wastes.

13. These capacities were calculated from data presented in *Alternatives for the Land Disposal of Hazardous Wastes: An Assessment for California* (prepared by the Toxic Waste Assessment Group, Governor's Office of Appropriate Technology, State of California, 1981).

mand for off-site commercial services. Although small generators are exempt from the state regulations' reporting requirements, they still must manage their wastes in accordance with the regulations. Better information is needed on the types and amounts of wastes that they generate[14] and also on how such firms are currently managing their hazardous wastes. Estimates of the amounts of hazardous waste that originate from these small generators range from 5 to 15 per cent of the state's total waste stream. However, most of these firms do not have on-site treatment and storage capacity, and their waste streams could therefore affect the demand for particular types of commercial management services in the state.

The accumulations of hazardous wastes that originate from spills and accidents and from the cleanup of "orphan" dumps and inactive sites may increase the quantities of these wastes. Spills and accidents cannot be predicted, but some estimate of the quantities of wastes that are likely to be accumulated in this way can be made from past records. Estimates of the quantities of hazardous waste from the cleanup of inactive sites is a much more difficult task. The state has identified approximately 167 sites that may require some type of remedial action.[15] However, since many inactive sites are on the generators' property and there is little incentive for firms to report themselves, we now have no way of knowing how many inactive sites need cleanup. This fact suggests the need for a comprehensive and systematic approach for identifying inactive sites. In addition, these sites should be systematically evaluated to determine the characteristics of the wastes in them and the relative hazards posed by such sites. Since both spills and inactive sites can present hazards to the public health and safety, remedial actions should be quick and effective. Unfortunately, many such incidents require commercial management services not now available in this state.

Management strategies

Establishing this more comprehensive data base is only the first step in developing a more systematic and comprehensive approach to managing the state's hazardous wastes. North Carolina, like most other states, relies on the "invisible hand" of the private market to determine how wastes will be managed. At present, state involvement in hazardous waste management is focused primarily on the administration of regulations and review of permit applications. These regulations are essentially the design and performance standards for hazardous waste management facilities developed by EPA and some general location standards developed by DHR. Many people believe that these standards are not stringent enough—especially those that apply to landfills.[16] Therefore a number of counties have enacted ordinances and regulations more stringent than federal and state standards, especially with respect to location standards.[17] Perhaps more significant, however, is House Bill 559, which passed both houses of the 1983 General Assembly in different forms. When the two houses could not reach agreement on the proposal before adjournment, the legislature assigned a legislative study commission to study the disposal of hazardous wastes. HB 559 would have permitted the landfilling of hazardous wastes only after other processes like recycling, reduction, and detoxification have been used. In addition, it would have excluded (or restricted or prohibited) a number of substances like liquid waste, ignitable and reactive waste, and toxic waste in concentrations over a certain threshold from landfills and would have subjected all hazardous waste disposal in landfills to a permitting process. The study commission is to report to the 1984 session of the General Assembly on alternative methods of hazardous waste disposal.

Although the hazardous waste landfill legislation was not enacted in the 1983 legislative session, last August the North Carolina Commission for Health Services adopted new rules that incorporate many of the features contained in House Bill 559. For example, these rules state that if technically and commercially feasible alternatives to landfills are available for a hazardous waste, then that waste may not be disposed of in a landfill cell unless the landfill will provide greater protection of public health than the alternative. Also, the new rules forbid the disposal of liquid hazardous waste in a landfill and make the design requirements for landfills more stringent than the federal regulations.[18] Without clear statutory authority, it is not known whether these new rules can withstand a legal challenge—they are obviously more stringent than the federal regulation and therefore violate a principle that has guided state hazardous waste regulations since 1978. The passage of legislation that confirms these rules would make them much more defensible in court.

These new rules are a first step in defining a more active role for the state in hazardous waste management. If some version of House Bill 559 is also enacted, the state will be faced not only with developing a regulatory program more stringent than the federal program being administered by DHR but also with more fully developing a planning and management program. For example, the state will need to determine the appropriate management practices for the various categories of hazardous waste. At present, there is no consensus regarding the most appropriate management techniques for many specific wastes. Furthermore, to comply with HB 559 or similar legislation, firms that generate a particular waste would need facilities that provide appropriate waste management services. Thus the state will need to encourage the siting and development of these non-landfill waste management services. Past experience, however, has shown that commercial treatment facilities often can be as difficult to site and develop as land disposal facilities.[19]

14. A study of small generators is now being conducted by the Urban Institute, The University of North Carolina at Charlotte.

15. Cited in Pierson, *op. cit. supra* note 11.

16. A number of recent public hearings conducted throughout the state by the North Carolina Waste Management Board show a general support for more stringent landfill regulations. In addition, the report published by the North Carolina Academy of Science's Committee to Assess Federal Landfill Regulations supports the adoption of more stringent hazardous waste landfill regulations.

17. For example, the Chatham County's ordinance on siting hazardous waste facilities required, among other stipulations, that land disposal facilities be at least 10 miles from the nearest church or school.

18. 10 NCAC 10F .0038; [statutory authority G.S. 130A-294(c)], effective January 1, 1984.

19. The difficulty in siting large commercial treatment facilities in Charlotte and Greensboro suggests that the people most affected by these facilities find them unacceptable. Strong local opposition to these facilities was a major reason the siting attempts failed.

Framework for planning and management

With this background, we would like to suggest some possible approaches to the development of a hazardous waste management plan that would incorporate the basic ideas set forth in HB 559. First, the waste management options should be analyzed in the context of the state's expanded hazardous waste data base discussed above. There are numerous approaches to such an analysis that could use the specific expertise of both the University of North Carolina system and government agencies at the state, regional, and local levels. Such an analysis would include not only treatment and disposal options for different waste streams but also reductions in waste generation that can be achieved with existing technologies and through recycling, source separation, and waste exchange. Second, various waste management strategies and their associated costs and effects, both short term and long term, should be mapped out on the basis of this waste management analysis. These strategies can be developed for the state as a whole or for "hot spots" at a regional or local level. Some of the specifics of each strategy would include technical assistance programs for industries to promote source reduction, source separation, and recycling; the types, sizes, and general locations of the needed facilities; and the required support facilities.

Third, efforts to educate and involve the public should be conducted on the basis of the various waste management strategies. This involvement should be much more than an occasional public hearing in which grievances are voiced; it should be shared problem-solving among government, industries, and citizen groups to insure safe management of hazardous wastes wherever they are generated. Such an involvement would require the public, generators, regulators, scientists, and other experts to talk and work together. Through such a process, a consensus concerning the types and locations of needed facilities may be developed. Without some degree of consensus among the various interests in the state, one conflict after another will occur concerning proposals for individual facilities that have not yet been justified as being needed.

With this general framework for a systematic approach to the management of hazardous wastes, North Carolina not only can avoid future problems associated with the mismanagement of hazardous wastes but also can set an example for other states that are trying to manage hazardous wastes. Such an approach would demonstrate a serious concern for our living environment and thereby make North Carolina even more attractive for individuals and firms. ●

The EPA *(continued from page 4)*

confidence that this has been happening. Regrettably, the problem runs right to the President himself. In his 1980 campaign, Mr. Reagan gave scant evidence that he understood the complexity of environmental issues, and there has been little evidence to show that his views have since evolved. Without credibility, EPA cannot moderate legitimate differences in search of consensus. The result is a stalemate, in which no one trust another's facts or motives and no one trusts the EPA to produce an objective set of facts.

We may hope that the President will maintain steadfast support for EPA's efforts—and its needs. Ruckelshaus will need it in his uphill battle to restore EPA as a well-managed agency characterized by integrity, fairness, and professionalism. In the final analysis deeds, not words, will determine credibility.

We are, in the genuine sense of an over-used word, living through a revolution even as we struggle to assimilate its meaning and cope with its impact. Despite the name we give them, most revolutions do not overturn reality suddenly. Though in retrospect such thinkers as Galileo and Darwin significantly altered man's perception of his universe, they had little impact on the behavior and thinking of most humans at the time they lived. Change in both thought and action occurred in small, leisurely increments. This environmental revolution, by contrast, has altered our thinking and our behavior in an astonishingly brief period of time. In a very fundamental way, we have come (in a decade) to a perception of limits on man's ability to exploit his habitat without regard for the consequences. The perception of limits has evoked a fresh wave of invention and ingenuity. We see it in the drive toward conservation, the effort to develop solar energy, and the re-examination of industrial processes to minimize pollution beforehand rather than cleaning it up after. This is a new definition of economic efficiency.

We are finding that, like all our familiar resources—timber, land, fossil fuels, and labor—the recognition of scarcity can itself be a resource . . . an intellectual resource that points our technology in a new direction: toward an infinitely more creative mode of invention that keeps human demands in balance with the earth's supply. ●

A State Management System for Regulating Toxic Substances—
A Perspective for North Carolina

Alvis G. Turner and Martin A. Smith

Our world has become increasingly dependent on the use of synthetic organic chemicals. Most of our manufactured products rely on them, and the rising productivity of our agricultural activities is based on widespread use of chemical pesticides and fertilizers. We could not do without chemicals, but we have not always realized the risks that may be associated with them. These toxic substances are all around us—in our air, water, and food—and many of them can cause significant health and environmental dangers. The Congress and the state legislatures have addressed the problems associated with toxic wastes by enacting regulatory laws and creating agencies to administer them. Yet we clearly have no blanket regulation of these materials. Each agency has been handed a piece of the problem, and a great deal of room is left uncovered where the pieces do not all fit together. This article will discuss the factors that have contributed to this fragmentation and suggest an integrated management plan to reduce risks from toxic substances without disrupting the economic and social benefits derived from the use of chemicals.

There are nearly two dozen federal statutes governing toxic substances and a comparable number of federal agencies responsible for the research, regulatory, and advisory provisions of these various acts. At least seventeen offices located within eight federal agencies or departments have a primary role in the control of toxic substances. A recent U.S. Environmental Protection Agency document required 318 pages just to summarize the activities of the federal agencies and statutory authorities relating to these substances.[1] Many states have also adopted this fragmented approach. It is little wonder that the effective integration of toxic substance regulation is improbable if not totally impossible.

Another problem that confounds the management of toxic substance is the inconsistency with which environmental legislation defines toxicity or hazard, the degree of protection provided, or who is to carry the burden of proof. With the Clean Air Act, the Water Pollution Control Act, the Safe Drinking Water Act, and the Resource Conservation and Recovery Act, that burden rests with EPA; with the Federal Insecticide, Fungicide and Rodenticide Act and the Toxic Substances Control Act, it falls on the proponent. Recently the Committee on the Institutional Means for Assessment of Risks to Public Health (in the National Academy of Sciences) recommended to Congress

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This article was adapted from a paper presented at the First Annual North Carolina Environmental Affairs Conference held at the Jane S. McKimmon Center in Raleigh, North Carolina on May 11 and 12, 1983.

Professor Turner is a member of the Environmental Science and Engineering faculty in the School of Public Health at the University of North Carolina at Chapel Hill. His article entitled "Controlling Hazardous Wastes: What Are the Options?" appeared in the Fall 1983 issue of *Popular Government*. Mr. Smith is a doctoral student in the same department.

1. Judith Colle, ed., *Federal Activities in Toxic Substances*, Toxic Integration Information Series 560/13-80-015 (Washington, D.C.: U.S. Environmental Protection Agency, 1980).

that a Board of Risk Assessment Methods be established "to draft and periodically revise recommended inference guidelines for risk assessment for adoption and use by federal regulatory agencies."[2] It also pointed out that the basic problem in risk assessment is the *incompleteness of the data—a problem not remedied by changing the organizational arrangement* for making the assessments. More about this later.

Water contamination provides an excellent example of how the pieces of the regulatory blanket do not meet. The Safe Drinking Water Act, administered by an EPA Assistant Administrator for Drinking Water, sets minimum standards for all public water systems in the nation and requires that regulations be adopted to control underground injection of fluids that may endanger drinking water sources for public water systems. The Clean Water Act is administered by a different person, the Deputy Administrator for Water Planning and Management, and is the responsibility of an entirely different office. This act sets standards for abating and preventing the pollution of waters near the site of the chemical use, while the National Pollution Discharge Elimination System (NPDES) is responsible for the control of toxic chemical discharges. The management and regulatory functions under these acts almost completely disregard the fact that the hydrologic cycle is continuous and broadly inclusive of water. And then there is acid rain, water in another form, which is the concern of a different statute and a different office (the Clean Air Act, and the EPA Office of Air Quality Planning and Standards).

Industry has also contributed to this fragmented approach to the management of toxic residuals. Its concern with trade secrets and proprietary information, whether justified or not, has severely restricted the availability of data on chemical production and use that are essential for assessing exposure and risk to humans.[3] Any attempt to require disclosure of this information would encounter sizable legal problems. However, we agree with the report of the National Governors' Association that one major function of the management process is "to gather sufficient and accurate information and organize it to enable problem/goal definition."[4]

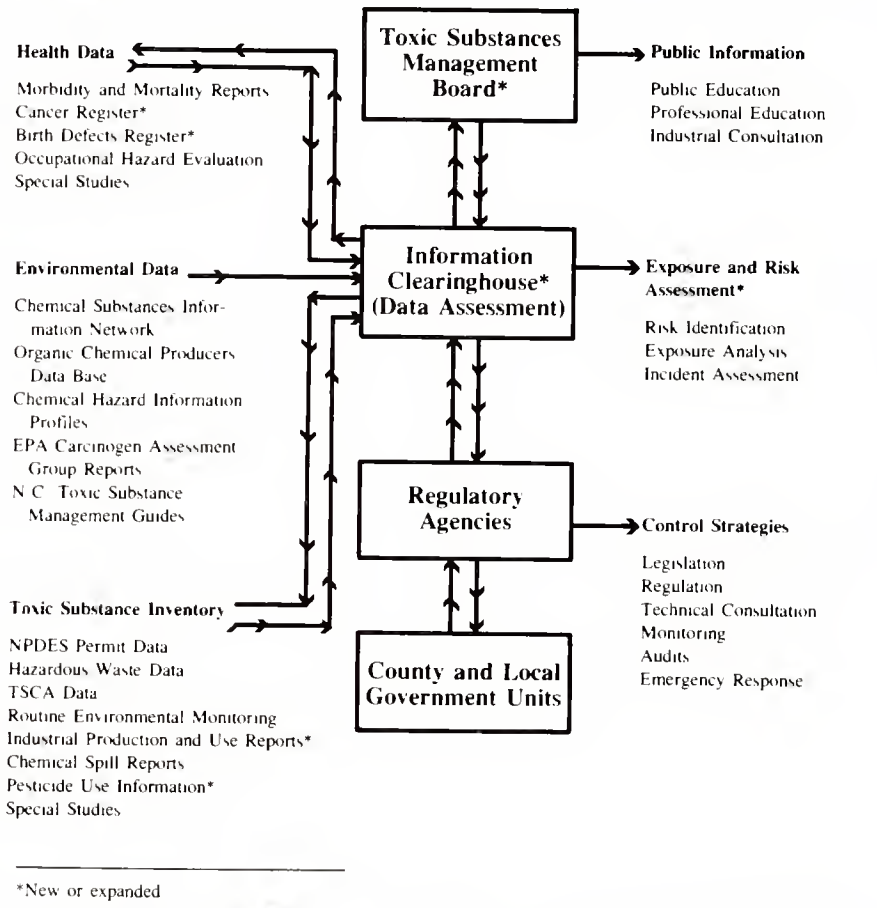
Currently federal environmental policy includes a major initiative to return regulatory authority and management responsibility to state and local governments.[5] States may respond to this initiative by developing integrated management systems with innovative environmental control strategies—or they may adopt the "cafeteria approach" to environmental pollution that evolved in the federal government during the 1970s.

The National Academy's committee on the assessment of risk and the National Governors' Association have pointed out that the first step in designing a management system for toxic substances is not in changing organizational arrangements but rather in collecting sufficient accurate data and sharing it effectively. Too often state agencies of many kinds are reorganized with the hope that function will follow form and more efficient management will result. This does not usually happen. It is even less likely to occur in the management of toxic substances and environmental residuals, considering the complexity of the regulations and categorical funding.

In our opinion, the initial focus of a state program for managing and regulating toxic substances should be on the collec-

Figure 1

Proposed Information Network for Managing Toxic Substances



2. National Academy of Science, *Risk Assessment in the Federal Government: Managing the Process* (Washington, D.C.: 1983).

3. Arthur T. Wallace, "A Proposed Mandatory Reporting System for Priority Chemical Substance Use and Production in North Carolina" (master's thesis, Department of Environmental Sciences and Engineering, The University of North Carolina at Chapel Hill, 1982.)

4. National Governors' Association, *Integrated Toxics Management: Fact and Challenge* (Washington, D.C., 1981).

5. Resource Policy Institute, "The Defederalization Transition: Issues, Obstacles and Ameliorative Options," (draft report to the Policy Research and Analysis Division, National Science Foundation, 1982).

tion, integration, flow, and use of information on hazardous substances. This approach assumes that organization and function will follow as needed. We propose that there be two key elements in the information network: the Toxic Substances Management Board, and the Information Clearinghouse (see Figure 1).

We view the proposed Toxic Substances Management Board as an expansion of the responsibilities of the existing Governor's Waste Management Board, which was established under the North Carolina Waste Management Act of 1981

> . . .[to] periodically . . . make recommendations to the Governor, cognizant State Agencies, and the General Assembly on ways to improve waste management; reduce the amount of waste generated; maximize resource recovery, reuse, and conservation; and minimize the amount of hazardous and low-level radioactive waste which must be disposed of [G.S. 143B-216.13(2)].

The Toxic Substances Management Board would assume the functions and powers of the current board for managing *all* toxic substances produced, used, transported, or disposed of in the state and would not be limited to just hazardous and low-level radioactive wastes. The expanded responsibilities of this board is the only organizational change in the proposed model.

In our proposal, the Information Clearinghouse would select and integrate health, environmental, industrial, food, and drug data in a form to be decided by regulatory and health units of state government. The presentation of this data might be organized around a particular type of chemical, a toxic effect, an environmental medium, or a specific source. The objectives would be to summarize data to identify a problem, to provide information for comprehensive regulation, and to support the assessment of risk. The information clearinghouse that we propose is not significantly different from the unified statewide environmental health data system that has been discussed by several state departments for some time.

The information network assumes several new or expanded information-collection activities. The most controversial is the mandatory reporting of chemical production and use in the state. A recent attempt by the State/EPA Toxic Substances Project to collect definitive information of this kind from existing data bases failed. But there is no alternative to requiring that information be reported in order to assess the exposure and risk to humans in the manufacture and use of certain chemicals. Several states—including Virginia, Connecticut, and Michigan—now require annual reporting of production and use data for selected high-volume and/or high-priority chemicals.[6]

Statewide registers of cancer and birth defects can provide an early warning system and can also be useful for correlating the patterns of incidence with such trends as the temporal and geographic distribution of drugs, chemicals, and other materials that may cause cancer or birth defects in humans.[7] However, this information is difficult to collect, interpret, and validate. Establishing these comprehensive registers will require considerable effort by the Division of Health Services.

The regulatory response to problems associated with a toxic substance often seems like a "chemical of the week" approach rather than a planned strategy. Attention to the most significant hazards will be essential, considering that resources are limited and that these problems differ by media, type of hazard, and source. The mechanism for assessing exposure and risk should be strengthened to identify significant hazards and to support the structures that have been provided to control and regulate toxic substances. All of these elements point to the need for the development and evaluation of a complex information base.

There is overwhelming evidence that toxic substances contribute substantially to human disease and illness and seriously damage the environment. It is essential that hazards be anticipated in order to be averted and that exposure be reduced to levels consistent with acceptable risks. Our proposal is one approach that could be used to meet this challenge. We believe that preventive action is possible without interfering with most essential and beneficial uses of chemicals and chemical products. ●

6. *Op. cit. supra* note 3.

7. Center for Disease Control, *Congenital Malformation Surveillance* (Washington, D.C.: U.S. Department of Health and Human Services, 1980).

Promotions at the Institute

Three Institute of Government faculty members have new positions. **Stephens H. Clarke** and **C. Donald Liner** have been promoted to full professor, and **Michael Crowell** has been appointed Associate Director of the Institute. The Associate Directorship is a newly established post.

Clarke joined the faculty in 1971 in the field of criminal justice. He directed a three-year study of sentencing in North Carolina and has published two book-length reports of those studies. He teaches sentencing and correctional law and consults with public defenders, district attorneys, and judges. In addition he conducts continuing empirical studies of the criminal justice system. For the past four years he has been editor of *Popular Government.*

Liner came to the Institute in 1971 with a Ph.D. in Economics. He works in the area of governmental finance, including state and local taxation, revenue estimation, and governmental data processing. His expertise has taken him into various fields touched by economic considerations, such as coastal management, school enrollment projections, and economic development. He has written a book entitled *Business Taxation and Economic Development in North Carolina.*

Crowell has been at the Institute since 1970. His fields of specialty have included criminal law, alcoholic beverage law, and election law and administration. He has also directed the Institute's Legislative Reporting Service and was borrowed by the General Assembly to direct its legislative drafting division during the 1981 legislative session. He will continue to work in election law. As Associate Director, Crowell will have primary responsibility in faculty recruitment and will assist Director John L. Sanders in a wide range of policy development, program planning, and administrative duties. *—MET*

Mining and Reclamation of Land in North Carolina

Charles H. Gardner and James D. Simons

Many people are not aware of the magnitude of the mining industry in North Carolina, the variety and value of the state's mineral resources, and the effort the state and mining operators have invested in the mining regulatory and reclamation program. This article briefly summarizes the economic importance of mining in North Carolina; discusses the requirements of the Mining Act of 1971 and the amendments of 1977 and 1981, along with the enforcement record; and reviews the reclamation accomplishments. It also points out the most important research needs for improving the reclamation of mined land in this state.

Economic importance

North Carolina's mining industry makes an important economic contribution to the state and the nation. Although the land disturbed by mining represents less than 0.1 per cent of the surface area in North Carolina, the annual value of the state's mineral production is over $300 million in raw product value, according to the U.S. Bureau of Mines. This raw product value probably translates to over $1.5 billion per year. Further, practically every other industry in the state depends on the materials and chemicals produced by mining. In terms of value, the leading mined commodities have been crushed stone, phosphate rock, cement, lithium minerals, and sand and gravel. North Carolina leads the world in lithium production and has led the nation in production of feldspar, olivine, pyrophyllite, scrap mica, and brick clays. Table 1 shows the annual mineral product value by commodity. Although mineral values are subject to fluctuations in market conditions (as the severe slump in 1981 and 1982 demonstrates), they have tended to increase. Construction aggregate (sand, gravel, and crushed stone) has grown the most, followed by industrial minerals. The number of mines permitted under the Mining Act has grown steadily (Table 2). Approximately 5,500 people are employed directly in mining.

The Mining Act

In its preamble, North Carolina's Mining Act of 1971 (G.S. 74-46 through -68) recognizes the importance of mining "to the economic well being of North Carolina and the Nation," and it spells out the General Assembly's intent to allow mining and to provide for the protection of the state's environment. This purpose includes providing for the "subsequent beneficial use of the mined and reclaimed lands."

That act established a permit program for all mining operators who disturb more than one acre. Each permit contains two types of conditions: (1) operating conditions to provide environmental protection during mining, and (2) reclamation conditions. These provisions are spelled out in detail in each individual permit so that they are site-specific. Reclamation is normally required within two years after the disturbing of any specific area is complete, though exceptions must be made for continuously active areas like quarries and clay-waste settling ponds.

The stated purposes of the Mining Act are as follows:

(1) That the usefulness, productivity, and scenic values of all lands and waters involved in mining within the State will receive the greatest practical degree of protection and restoration.
(2) That from June 11, 1971, no mining shall be carried on in the State unless plans for such mining include reasonable provisions for protection of the surrounding environment and for reclamation of the area of land affected by mining [G.S. 74-48].

This mandated protection of the environment during mining, and reclamation after mining, gives the State Mining Commission and the Department of Natural Resources and Community Development

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(NRCD) broad powers to regulate mining activities across the state, ranging from peat mining to rock quarries to sand pits. The act was amended in 1977 at NCRD's request and again in 1981 in response to recommendations of a board established by the General Assembly to review administrative agencies.

A mining permit is required for any activity that disturbs one or more acres of "affected land." "Affected land" is defined to include mine excavation, processing areas, stock piles, waste piles, and settling ponds. To apply for a mining permit, the applicant must (1) submit an application describing how the environment will be protected and the site reclaimed; (2) submit plans for the mine location and layout; and (3) notify adjoining property owners and local governments of the proposed operation and of their right to a hearing.

One of the 1981 amendments to the Mining Act provides that NRCD may hold a public hearing if sufficient public interest exists. As of April 1983, two formal public hearings had been held. Before this amendment, NRCD held several public meetings when local citizens expressed concern about a proposed operation. The statute requires the department to circulate the application to other appropriate government agencies and allows it sixty days to grant or deny the permit. If a public hearing is held, NRCD has thirty days following the hearing to grant or deny the permit.

The act requires that a mining permit be granted unless (1) any requirement of the act or regulations will be violated; (2) the operation will have an unduly adverse effect on wildlife or fresh water, estuarine, or marine fisheries; (3) the operation will violate state standards for air, surface water, or ground water; (4) the operation will constitute a substantial physical hazard to the public; (5) the operation will have a significant adverse effect on the purposes of a publicly owned park, forest,

Table 1

Mining Product Value (X $1,000) by Year and Commodity

Year	Sand & Gravel	Crushed Stone	Industrial Minerals	Clay & Shale	Dimension Stone	Gem-Stone	Total
1973	$19,327	$76,062	$42,441	$5,057	$3,203	$40	$146,930
1974	20,844	72,342	55,185	4,648	2,800	50	$155,869
1975	15,610	69,327	63,799	4,094	—	50	$152,880
1976	18,287	75,462	97,839	4,677	7,000	75	$203,340
1977	21,269	87,254	114,882	4,990	3,041	75	$231,511
1978	28,080	108,867	145,464	9,067	3,050	50	$294,578
1979	29,733	125,319	174,867	8,385	3,932	50	$342,286
1980	28,735	125,019	213,728	7,308	4,536	40	$379,366
1981	28,700	119,800	185,214	5,650	4,512	40	$343,916
1982	25,300	116,700	123,657	6,554	2,814	60	$275,085

Source: *The Mining Industry of North Carolina*, published annually by the U.S. Bureau of Mines.

Table 2

Number of Permitted Mines by Year and by Commodity

Year	Sand & Gravel	Crushed Stone	Industrial Minerals	Clay & Shale	Dimension Stone	Gem-Stone	Total
1973	140	79	41	40	17	16	333
1974	188	93	38	43	19	20	401
1975	231	100	38	44	19	20	452
1976	255	102	41	45	19	20	482
1977	257	102	45	47	19	20	490
1978	268	101	47	50	19	22	507
1979	271	107	46	47	19	22	512
1980	280	110	48	48	19	20	525
1981	288	111	53	47	19	14	532
1982	311	112	54	47	19	17	560

or recreation area; (6) previous experience with similar operations indicates a substantial possibility that the operation will result in significant deposits of sediment in streams or lakes, landslides, or acid water pollution; or (7) the operator has not corrected all previous violations.

An operator may appeal any NRCD decision to the State Mining Commission. The Commission is composed of nine members appointed by the Governor. Three representatives are from the mining industry, three are from nongovernmental environmental interests, two are from the Environmental Management Commission, and one is the chairman of the North Carolina State University Minerals Research Laboratory Advisory Committee.

If an application is approved, the operator must file a reclamation-compliance bond before the permit is issued. A 1981 amendment authorizes the Mining Commission to set the bond amounts. The original requirements were: 1-5 acres, $2,500; 5-10 acres, $5,000; 10-25 acres, $12,500; and 25 or more acres, $25,000. The bonding regulations were amended on December 1, 1983, to base bonding amounts on the type of operation as well as degree of disturbance. For quarry types of excavation in rock and for clay mining, the required bonding is: 1-10 acres, $5,000; 10-25 acres, $12,500; over 25 acres, $25,000. Bonding requirements for other types of mining remain essentially as they have been. However, the regulations provide that the blanket bond of $25,000 may be increased to $50,000 if the operator has a violation of the Mining Act.

The permit contains an environmental control section and a reclamation section. Each section contains site-specific conditions. The operator is required to submit an annual report that outlines the reclamation performed during the previous year. The permit is granted for a maximum of ten years and is renewable. It may also be transferred or modified at the operator's request. NRCD is authorized to modify an existing permit if the conditions of the permit do not achieve the purposes of the act.

Enforcement

Background. Since the Mining Act of 1971 was enacted, its policies and procedures for enforcement have evolved considerably from very generalized procedures to detailed procedures. At first, few enforcement options were possible. Later amendments added multiple options that include civil penalties, injunctive relief, and suspension of the permit with forfeiture of the bond. Amendments to the act and experience in the program have brought about improvements in enforcement.

Enforcement of the act is directed at two purposes—ensuring compliance with permit conditions that provide for environmental control during mining and reclamation after mining, and preventing mining without a permit. Under the original act, the only recourse for failure to correct deficiencies was to begin procedures for suspending or revoking the permit. Legally imposed time requirements for notice of hearings and possible appeal to the Mining Commission and to superior court could have delayed actual compliance for several months. Suspending or revoking the permit was considered a last resort, and many minor violations continued while voluntary compliance was sought. To date, nine hearings to suspend or revoke permits have been scheduled, eight of which were scheduled before the 1981 amendments authorized the imposition of civil penalties. Only two of them had to be held. Both hearings resulted in the operator's signing a consent agreement to comply, and on-site compliance was obtained shortly thereafter. The seven other scheduled hearings were canceled when the operator complied before the date for the hearing.

Before 1977 the only available enforcement procedure for mining without a permit was to seek either criminal penalties or injunctive relief in superior court. Neither remedy was sought until exhaustive efforts to obtain voluntary compliance had been made. NRCD has sought a criminal penalty once. Injunctive relief to prevent further mining without a permit and/or to reclaim any mining disturbance made without a permit has been sought and secured for four sites.

Two enforcement tools were added administratively in 1975-76 to increase the act's effectiveness. First, the format of the mining permit itself was changed from a certificate to a document that detailed site-specific provisions for operations and reclamation. With detailed permit conditions, enforcement procedures could then be based on a failure to comply with the specific terms of permits rather than on a failure to comply with the generalized purposes of the act.

The other enforcement tool put into effect in 1975-76 was an agreement with the State Department of Transportation (DOT) that allowed DOT to stop buying aggregate (sand and gravel) from an operator when it was notified that the operator has violated the Mining Act. This agreement was implemented by adding a condition to the "Request for Bids on Fine or Coarse Aggregate" and by NRCD's notifying DOT in writing of all violations of the Mining Act. DOT has been very cooperative in the few requests for this sanction that have been made. Although infrequently used, the threat of having DOT (a major purchaser of aggregate) cancel a contract has been very helpful in gaining compliance from operators that sell aggregate—particularly before amendments to the act enabled NRCD to impose civil penalties for violations.

Civil penalties. In 1977, the Mining Act was amended to allow NRCD to assess a civil penalty of up to $5,000 per day of violation for mining without a permit. This amendment greatly facilitated enforcement, since it enabled the department to take direct action when an operator was mining without a permit rather than having to seek injunctive relief or a criminal penalty in superior court. The amendment is written to allow a civil penalty for mining without a permit to be assessed for violations committed before a notice of violation is sent. Consequently, the possibility of receiving a civil penalty is an incentive for an operator to obtain a permit before he begins mining. As of April 1983, eight operators had been assessed a total of $10,825 in civil penalties for mining without a permit. The number of incidents of mining without a permit has gradually dropped as awareness of both the act and the penalties has become more widespread.

The 1981 amendments to the act authorized NRCD to impose civil penalties of up to $100 per day for violating the conditions of a mining permit. This authority gave the department more latitude in dealing with minor violations while strengthening its hand in dealing with violations that warrant a hearing to suspend or revoke the permit. The authority to impose a civil penalty also shortened the time required to act on a violation.

Under current regulations, a notice of violation must be sent that gives a reasonable period to comply and warns of

a penalty. A daily penalty, beginning on the date when the notice is received, is assessed if compliance is not gained within the prescribed period.

Between July 1981 and April 1983, three civil penalties that totaled $3,200 were assessed, with additional settlements under way.

The number of notices of violation is expected to increase as this provision is fully implemented. It is hoped that the number will decrease as operators experience prompt enforcement without the previous delays needed to schedule a suspension or revocation hearing.

Only three bond forfeitures have occurred as a result of operators' abandoning the site without reclaiming it; this is a good record, considering that there are well over 500 mines in North Carolina. The forfeitures were a $2,500 savings assignment for a sand and gravel pit, a $2,321 mortgage of real property for a clay mine, and a $2,500 bond for a crushed-stone operation.

Summary. Most compliance with the Mining Act of 1971 has been voluntary. The large majority of mine operators have complied with the act's provisions with only occasional reminders. But for habitual, continuing, or severe violations, the act as amended in 1981 provides several enforcement options. Operators that mine without a permit and in violation of permit conditions are normally assessed a civil penalty. More urgent violations that endanger public safety or environmental quality may be enforced more expediently by injunction if the operator fails to comply voluntarily immediately. A civil penalty would usually follow such action. For a repeated, willful violation, criminal charges may be brought. Permit revocation and bond forfeiture are reserved for continuous or habitual violations or abandonment of sites.

Reclamation

The Mining Act of 1971 requires that reclamation begin as soon as practical after the mining operation terminates. Although the act provides that reclamation shall be completed within two years, NRCD may grant longer periods for reclamation. This extension is commonly granted for quarry types of excavations where areas of the excavation are active and for clay settling-pond areas where the clay may take years to dry sufficiently for reclamation.

Before the Mining Act was enacted, North Carolina law did not require reclamation. Consequently, what little reclamation was done was often haphazard and did not actually restore the mined area for any useful purpose. A preliminary report based on information supplied by the operators that received initial permits in 1972 showed that until the Mining Act was passed, only about 1,100 acres had been reclaimed. One early estimate by the Soil Conservation Service found that over 36,000 acres had been mined in the state before 1965.

Statistics on mined land were not kept until 1973, when the operators were first required to submit annual reclamation reports that outlined their mine-disturbance and reclamation activities during the previous year. These reports show that approximately 5,896 acres had been reclaimed from 1971 to 1982. During this same period, approximately 13,092 acres had been mined. Thus the land that was reclaimed during those years represents about 45 per cent of the land that was mined after the Mining Act was passed. The 55 per cent not yet reclaimed consists of long-term mine use, such as quarry excavations, processing plants, stock piles, active waste piles, and settling ponds.

Table 3 shows the amount of land mined and reclaimed by permitted operations each year from 1973 to 1982. As previously mentioned, these statistics are based on annual reports submitted by the operators. Although an effort is made to field-check the reports during mine inspections, these statistics should be considered approximate. The total amount of mining land disturbed and reclaimed has increased steadily since 1973, as Table 3 makes clear.

The acreage of mined land is expected to increase dramatically when another major phosphate mine opens and if proposed large-scale peat-mining operations develop. Consequently, mine reclamation will become even more important in ensuring wise use of the state's land.

Research needs

While many areas of reclamation research could lead to more productive mine reclamation at lower costs, three important categories of mine reclamation problems deserve special priority in North Carolina: reclamation of waste clay impoundments, particularly in the mining of phosphate and gravel; buffer-zone criteria for alluvial gravel mines along mountain streams; and reclamation alternatives in peat-mining areas.

Waste clay impoundments. Many mining operations use a washing process to separate silt and clay sized materials from the ore, and these fine-grained waste materials are deposited as a slurry in mined-out pits or are retained in artificial impoundments formed by earth dams. The clay waste deposits are typically colloidal, thixotropic masses (many feet thick) that are very slow to consolidate. Normally the waste impoundments will not support significant loads (such as sand-capping or agricultural equipment) for many years—or even decades. Unreclaimed waste clay impoundments account for a significant portion of the difference between "acres disturbed" and "acres reclaimed" in North Carolina's mining statistics.

In terms of total volume and unreclaimed surface areas, this problem is most severe in the phosphate and gravel industries. For example, the phosphate industry in North Carolina has dedicated almost 3,000 acres to clay waste impoundments that have an ultimate storage capacity of almost 100,000 acre-feet. None of these areas has been reclaimed.

In Florida, considerable research has been done on developing economically feasible methods of accelerating consolidation of phosphatic clay wastes, and some progress has been made. That research and experience needs to be extrapolated to North Carolina's conditions. Texasgulf, Inc., is now experimenting with a new system of mixing sand, clay, and gypsum wastes; best use of that system for improved reclamation could be fostered by further research.

Improving the consolidation rates and reclamation of clay wastes could be of significant economic benefit to the mining industry by reducing the number of waste storage impoundments constructed and by increasing the value of those lands. Reducing the number and size of these impoundments also would lessen the risk of damage by dam failures.

Gravel mining along mountain streams. A significant amount of alluvial gravel is mined in the floodplains of mountain streams in North Carolina. Many of these streams support trout

Table 3

Number of Acres Disturbed by Mining and Reclaimed[1]

Year	Sand & Gravel		Crushed Stone		Industrial Minerals		Clay & Shale		Dimension Stone		Gemstone		Total	
	Dist.	Recl.[2]	Dist.	Recl.	Dist.	Recl.	Dist.	Recl.	Dist.	Recl.	Dist.	Recl.	Dist.	Recl.
1971-73	476	50	129	43	130	19	64	0	2	0	5	0	806	112
1974	504	189	172	62	32	109	168	93	1	4	7	15	884	472
1975	521	288	155	83	108	49	74	44	6	1	15	0	879	465
1976	459	379	203	83	204	367	86	33	2	0	11	19	965	881
1977	450	457	190	108	180	74	66	21	12	0	5	13	903	673
1978	437	251	186	98	492	175	134	18	11	7	8	4	1,268	553
1979	359	285	240	134	503	143	176	52	12	10	11	8	1,301	632
1980	524	274	242	153	2,245	154	150	44	8	4	11	10	3,180	639
1981[3]	600	536	225	150	1,096	150	100	25	10	5	5	7	2,036	873
1982	483	303	217	146	110	122	38	7	21	17	1	1	870	596
Total	4,813	3,012	1,959	1,060	5,100	1,362	1,056	337	85	48	79	77	13,092	5,896

1. Statistics on disturbance and reclamation on mined land are based on information submitted by permitted operators and should be considered approximate
2. Dist. = acres disturbed during the year; Recl. = acres reclaimed during the year.
3. Individual commodity statistics for 1981 are estimated; the total is based on annual reports

fisheries; all are relatively high-velocity waterways, and they frequently flood. The mines are obviously in environmentally sensitive areas. Mining permits in these areas require that undisturbed buffer zones be maintained between the mining excavation and the streams. However, the buffer zones are often destroyed by natural migration of the streams.

Research is needed to establish width requirements for buffer zones and to determine the best vegetation types for buffer zones and reclamation areas.

Peat mining wet reclamation alternatives

At present, permits for peat mining specify that the mined areas will be reclaimed for forests or agricultural use. Practically all of the currently permitted areas will have elevations for mined pit bottoms that are high enough to allow gravity drainage after mining. However, thousands of acres of potentially minable peat deposits are too low-lying to be gravity-drained when mining is complete. Reclaiming these areas for agriculture or forestry would require "perpetual pumping," and it is not assured that pumping would be maintained; the areas could therefore become permanently flooded. It is unknown whether such flooded, mined-out peat lands would be productive for wildlife or fisheries.

Research is needed to establish acceptable reclamation alternatives for these low-lying deposits. The research should include (a) investigation of diking to prevent salt water flooding during major storms; (b) natural and introduced vegetation in flooded areas, and (c) prediction of the types of wildlife and fisheries habitat that would develop naturally or could be developed in properly designed wetlands. ●

Rural Solid Waste Collection Systems:

Making the Best of Limited Resources

David F. Long

Over the past several years, the management of solid waste materials has evoked considerable public interest and debate in North Carolina. The growth of the state's population and economy during this period has generally been welcomed, but it has not been without cost. As the state has become both more populous and more prosperous, the volume and diversity of its solid waste "stream" have also grown. It has been estimated, for example, that the average North Carolinian generates about 2.5 pounds of solid waste material (e.g., trash, garbage, rubbish) daily—or just over six cubic yards annually. The state as a whole generates nearly 36 million cubic yards annually, excluding heavy commercial and industrial materials. This observation gains added importance from the fact that population and economic growth not only requires more solid waste management services but also reduces the amount of space suitable for these services. Clearly, properly managing solid waste materials should receive high priority on North Carolina's agenda for the 1980s.

This article focuses on the collection of conventional solid waste materials by local governments in the state's rural areas. The collection process leads to but does not include placing materials into an ultimate disposal facility. Roadside containers, collection vehicles, and transfer stations, for example, are all components of the *collection* system. In contrast, landfills or incinerators are part of the *disposal* process. Also, conventional solid waste materials should be distinguished from hazardous or otherwise difficult-to-handle wastes. While hazardous waste management is a vital issue to the state and must be addressed properly, it does not at present constitute a major element of the day-to-day operations of North Carolina local governments and therefore is not discussed here. Resource recovery is also not discussed (see *Popular Government* for Spring 1982), though it has great potential for improving the solid waste management process. Finally, this article directs its attention to the state's rural areas. For the sake of simplicity, such areas can be considered to encompass unincorporated areas— which are, of course, the principal province of county governments.

In most areas of North Carolina, rural solid waste collection began in earnest only in the late 1960s and early 1970s, and only now are these county systems being studied. Many of the collection systems established 10 years ago have begun to have problems that can largely be traced directly to inadequate funding, but many other problems can be attributed to the lack of systematic planning and management. A systematic program should aim at maximum performance with existing resources.

Having faced up to shrinking funding and the need to make the most of every dollar, county governments see solid collection as a service in which proper planning and management can pay off in terms of economy. Solid waste collection systems can accommodate changes in design more readily than most other public services. It is difficult to overhaul a water or sewer system, for example, because so many of its components represent long-term commitments. But by simply changing from backyard to curbside collection of solid wastes, tremendous cost savings can be made practically overnight. This flexibility permits alterations to solid waste collection systems to be undertaken relatively inexpensively and quickly. Such changes can often maximize service while minimizing costs.

Counties should recognize that their collection systems can be adjusted as needed to improve efficiency. This article shows several methods that may be used to improve the productivity of rural collection systems—for example:

(1) Technical analysis of the existing system, accompanied by recommendations for its improvement;
(2) Development of management tools, like an accounting system, regulatory measures, and public education programs;
(3) Examination of alternative collection systems.

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The "green box" collection system

Most rural solid waste collection systems in North Carolina use "green boxes," and this article focuses on this type of system. A green box is a relatively small (4- to 8-cubic-yard capacity) metal container usually known by the trade name "Dumpster." When viewed as a network, the boxes form a "bulk storage container system." The green box is primarily a temporary storage facility for household solid wastes; but small businesses, industries, institutions, etc., that do not generate large volumes of solid waste can also be accommodated by the green box system. Unfortunately, the green box system presents many problems for a county's decision-makers, not the least of which has been an increasing strain on a county's budget in recent years. This situation is perhaps best described in a report issued by the Tennessee Valley Authority.[1] For the past decade TVA's Regional Waste Management Program has studied rural solid waste collection systems in the entire Tennessee Valley (including western North Carolina). Its report issued in 1980 points out that many counties, after having had three or four years of success with the green box system, encountered serious difficulties with their collection operations. Some counties' systems collapsed completely. The reasons cited for these failures included inadequate management, improper design, and failure to expand the system to accommodate increased demand. Increasing costs of fuel and equipment over the past decade also contributed heavily to the burden of management.

Most North Carolina counties that operate countywide collection systems use green boxes.[2] Although better systems may be available, the capital investment in the green box system and the start-up costs of a new system make local decision-makers hesitant to abandon the green boxes. The current replacement cost of the containers and collection vehicles of one green box system that serves a typical western North Carolina county of 19,000 population was estimated recently at over $250,000. In my opinion, a county should seek to improve its existing green box system through systematic planning and management in order to achieve its dual objectives of providing a reliable service while holding costs down.

A preliminary management study

A county that wishes to improve its green box system, or perhaps establish a new green box system, will need a preliminary management study. A basic guide for preparing such a study follows. The information used in the example comes from actual experience, but it is applied to a hypothetical rural North Carolina county that has a total year-round population of 14,100 and a land area of 210 square miles. I have prepared detailed studies of green box collection systems in five western North Carolina counties[3] on the basis of the management concepts outlined here. The paramount goal in all five studies was to upgrade the existing level of collection service while cutting the

1. Patrick B. O'Connor, *Design Concept: Countywide House-to-House Solid Waste Collection System* (TVA Regional Waste Management Program, 1980).

2. Fourteen of the 19 counties served by the Asheville Regional Office of the North Carolina Department of Natural Resources and Community Development use the green box system.

3. The five counties studied to date are Cherokee, Macon, Mitchell, Swain, and Yancey.

Table 1

Site Capacity

Map Key	Site Name	Number of Boxes				Site Capacity
		Total	4 c.y.	6 c.y.	8 c.y.	
1	Maple Hill	3	—	3	—	18 c.y.
2	Riverdale	8	7	1	—	34
3	Smith's Creek	1	—	—	1	8
4	Mann School	1	—	—	1	8
5	Stone Creek	1	—	1	—	6
6	Blue Hill	2	2	—	—	8
7	Conley Church	1	—	1	—	6
8	Rock Creek	6	3	3	—	30
9	Jefferson School	1	—	1	—	6
10	Johnsonburg	10	10	—	—	40
11	Spoon Mountain	2	—	2	—	12
12	Misty Valley	8	3	5	—	42
13	Carmel	4	2	2	—	20
14	Canaan	1	1	—	—	4
15	Brown Cove	3	—	3	—	18
16	Larson School	1	—	—	1	8
17	Recreation Park	1	—	1	—	6
18	Michaels School	1	—	—	1	8
19	Health Department	1	1	—	—	4
20	Elam's Crossroads	8	—	8	—	48
21	Highway 47	7	7	—	—	28
22	Winter Creek	1	—	1	—	6
23	Miller High School	2	—	—	2	16
24	Wolf Mountain	8	—	8	—	48
25	Beal's Store	2	—	2	—	12
26	Taylor School	1	—	—	1	8
27	Lawson School	1	—	—	1	8
28	Niven Creek	8	—	8	—	48
29	Victory Grove	12	11	1	—	50
30	Davis Hill	12	—	12	—	72
31	Carson Heights	4	—	4	—	24
32	Starling	3	—	3	—	18
	Total	125	47	70	8	672 c.y.

costs of the service, at minimal capital expense. Some of the results include:

—Elimination of unproductive mileage from collection routes, at a substantial cost savings.

—Rerouting of collection vehicles in order to avoid dangerous features like steep inclines, narrow bridges, and busy intersections.

—Development of cost and performance figures for a county-operated green box system that were then used to evaluate the bids the county received for private contracting of the system.

—Restructuring of the collection routes to distribute the overall workload more fairly among collection crews.

—Beautification of collection sites.

—Improved managerial control over personnel and equipment.

When the state's first green box systems were established about fifteen years ago, collection sites were customarily located near points of maximum traffic flow. County highway maps showing average daily traffic flows were often used in planning site locations. Unfortunately, planning usually stopped once the sites were established. In an effort to demonstrate practically the many benefits of well-planned and well-managed collection systems, the Division of Community Assistance of the Department of Natural Resources and Community Development (NRCD) and the Tennessee Valley Authority have undertaken several comprehensive studies of rural collection systems within western North Carolina counties. A 1981 study of Cherokee County's system, for example, resulted in a detailed document of over 100 pages that addressed such topics as personnel, equipment, routing logistics, and so forth. While a study of this magnitude is not needed in every case, a basic study of a green box collection system should contain at least the following elements: (1) inventory of existing sites, (2) preparation of a mapboard, (3) inventory of collection routing and frequency, (4) analysis of the overall adequacy of system capacity, (5) estimate of the occurrences of landfill trips, (6) calculation of the time and mileage associated with collection routes, and (7) estimate of the cost of operating collection vehicles.

The supervisor of the collection system—as well as local elected officials, financial administrators, county managers, and other concerned individuals—will find the information generated from the items listed above to be of great practical value.

1. **Inventorying the sites.** This inventory should be prepared in table form, each site being assigned a name and numeral. The quantity and capacity of each type of green box (4, 6, or 8 cu. yds.) should be tallied, and judgments should be made concerning the condition of each box, the site's condition and accessibility, and related items like the need to fence the site. The inventory should result in tables like those illustrated for the hypothetical North Carolina county (Tables 1 and 2). These tables will provide the manager with a ready reference for assess-

Table 2

Condition of Green Boxes and Sites

Site Name	Green Boxes				Site Cleanup	Access	Other Comments
	Replace	Major Repair	Minor Repair	OK			
Maple Hill	—	—	1	2	Good	Adequate; surface OK	—
Riverdale	4	2	2	—	Intolerable	Inadequate; directly adjacent to road; essentially no pull-off area; dangerous to enter and exit	There exists a severe open dumping problem, especially with regard to tires. Site is directly adjacent to North River; when river rises, it carries solid waste materials downstream. This site is the worst in the county; should at least be backfenced.
Smith's Creek	—	—	—	1	Excellent	Adequate; surface OK; may need to restrict parking to maintain access	One of the cleanest and most attractive sites in the county; serves as a model for green box site located within residential area.
Mann School	—	—	—	1	Good	Somewhat congested but adequate; surface OK	—
Stone Creek	—	—	1	—	Poor	Inadequate; directly adjacent to road; essentially no pull-off area; dangerous to enter and exit	Site borders on embankment; much solid waste has been dumped on slope; could use backfencing.
Blue Hill	1	1	—	—	Fair	Good pull-off area; surface OK overall; could use minor graveling	(see Stone Creek)
Conley Church	—	—	1	—	Good	Spacious pull-off; needs graveling and grading	—

ing conditions like whether the containers at each site need to be replaced or repaired.

2. **Preparing the mapboard.** The mapboard complements the existing-site inventory by showing site locations and characteristics visually. It is constructed easily by mounting a small county highway map (available from the North Carolina Department of Transportation [DOT]) at a scale of at least 1 inch = 2 miles onto a piece of styrofoam 1/4-inch thick. Colored map tacks indicate the locations of individual green boxes. A red map tack, for example, might symbolize a four-cubic-yard container, blue a six-cu.-yd. box, and green an eight-cu.-yd. receptacle. The tacks are grouped into sites, and each site's number is placed beside that group of map tacks. The site names and numbers appear on a list placed in a corner of the mapboard. The mapboard enables a manager to see at a moment the location and distribution of the county's present collection arrangements and perhaps possible alternatives.

3. **Inventorying the routes and frequency of collection.** This process describes the daily routes followed by each collection vehicle. Several methods can be used to report this information, which is best obtained (in raw form) from interviews with the driver of each truck. Ideally, the daily routes should be either mapped or listed in a flow chart in order to reflect the sequence in which the various sites are serviced, but Table 3 shows a simple way to achieve the same objective. In this table, an entry beside a site name under a particular day indicates that the site is serviced on that particular day; that is, the table shows the collection *frequency*. The various numerical entries (for example, 1 through 13 on Monday) indicate the *routing* followed by collection vehicle. For example, the first stop on Monday is Brown Cove, followed by Health Department, Starling, Michaels School, and so forth. The final stop (13) is Winter Creek. Table 3 reflects the activities of only one collection vehicle. There should be as many tables as there are trucks in operation. If a detailed analysis of collection routing is to be made, it may well be helpful to indicate at which points on the route the truck normally goes to the landfill.

4. **Analyzing the overall adequacy of system capacity.** This analysis can be performed largely by using the base data gathered in the preceding items; it will produce information that will help determine whether the overall capacity of a county's green box system is adequate to accommodate the need. The system should be examined on the basis of a one-week study period, since a week is customarily the time period during which a complete collection cycle is made.

The first step is to determine the load placed on the system. The population served must be calculated. Usually it will be the total population of the county minus those who live within the county's incorporated municipalities and those who are served by other means of collection, such as private solid waste haulers. The remaining population should be multiplied by an estimated weekly per capita solid waste generation rate of fourteen pounds per person (this rate applies to *rural* areas only). The resulting figure is then divided by a factor of 150 lbs. per cubic yard in order to determine the number of cubic yards of loose solid waste material that are generated weekly within the green box service area.[4] Seasonal adjustments to these load figures should be made where necessary. For our hypothetical county, the loads averaged 1,299 c.y. of loose solid waste material per week from May to October and 1,181 c.y. per week from November to April.

Table 3

Collection Routing and Frequency

Site Name	Mon	Tue	Wed	Thu	Fri	Sat
Maple Hill			7			X
Riverdale			6			6
Smith's Creek			5			5
Mann School			4			4
Stone Creek			3			3
Blue Hill		3	2		3	2
Conley Church		4			4	
Rock Creek		5			5	
Jefferson School		6			6	
Johnsonburg		7			7	
Spoon Mountain		8			8	
Misty Valley		9			9	
Carmel		2	1		2	1
Canaan		1			1	
Brown Cove	1			1		7
Larson School	5			5		11
Recreation Park						12
Michaels School	4			4		10
Health Department	2			2		8
Elam's Crossroads	6	10		6	10	13
Highway 47			8			
Winter Creek	13	11	15	14	11	19
Miller High School		12		7	12	
Wolf Mountain	7	13	9	8	13	14
Beal's Store	8	14	10	9	14	15
Taylor School		15		13	15	
Lawson School		16		12	16	
Niven Creek	9	17	11	10	17	16
Victory Grove	10		12		X	X
Davis Hill	11	18	14	11	18	18
Carson Heights	12		13		X	17
Starling	3			3		9

X = Service provided during May-October period, but not November-April.

4. These figures have been reasonably reliable in practice but are merely rough estimates that may vary considerably by time and place.

The green box system's capacity to sustain this load can be determined by multiplying the cubic-yard capacity of each site by the number of times per week that each site is serviced. Both of these pieces of data can be extracted from the tables prepared previously (see Tables 1 and 3); when the figures are tabulated for the hypothetical county, the result shows a weekly *residential* collection capacity of 2,300 cubic yards.

In this example, the system's capacity (2,300 c.y.) significantly exceeds the average weekly load (1,299 c.y.) placed on the system from May to October. To be safe, however, the system must be able to accommodate the *peak* weekly load during the May-October period while operating at *less than maximum efficiency*. To allow for peak periods, a 20 per cent compensation factor should be added to the average May-October weekly load—bringing it to 1,559 c.y.—while the available capacity should be reduced by about 15 per cent to a level of 1,955 c.y. to account for inefficiencies in collection. Even with these adjustments, the system's capacity is adequate: the supply of space available in the green boxes (1,955 c.y.) considerably exceeds the demand for this space (1,559 c.y.).

These figures should be useful in determining whether the number of containers within the current system should be increased or reduced.

5. **Estimating when trips to the landfill must be made.** Though the points on the collection route where the collection vehicle will have to make a trip to the landfill cannot be predicted with precise accuracy, whoever lays out the route should remember that the trip should occur when the truck is as full as possible and as near the landfill as possible. Routes should be laid out so as to strike an optimal balance between these two goals in order to achieve both efficiency and low cost (though even the best-planned schemes for anticipating landfill trips will be sometimes frustrated by changing daily circumstances).

Several pieces of data and rules of thumb will prove useful in estimating where on the collection route the truck will probably be fully loaded. For example, a truck with a collection capacity of 30 cubic yards normally compacts at a ratio of 3 to 1; therefore it can accommodate a maximum of 90 c.y. of loose material or 30 c.y. of compacted material. Therefore, for example, once the truck has serviced 15 six-c.y. containers (or 90 c.y. of loose material, assuming that each container is full), a landfill trip will be required. Of course, if the green box contained construction materials or other materials that cannot be compacted, the truck might have to head for the landfill sooner than was expected.

The points on the route where the truck becomes full and must go to the landfill can be anticipated by using the information contained in Tables 1 and 3. For example, it can be calculated that on Monday, a landfill run will be necessary during the servicing of the Elam's Crossroad site, the sixth stop on that day. Once 34 c.y. of the total 48 c.y. contained at this site are loaded, a cumulative total of 90 c.y. will have been gathered from stops 1 through 6. (It must be pointed out that this calculation is a helpful tool but should not be relied on too rigidly because "real world" circumstances may throw the computation off.)

6. **Calculating the time and mileage associated with collection routes.** The time spent and the mileage traveled during each daily collection route should be calculated. The basic building blocks of this process are the table that describes the daily routes of each truck (Table 3) and the projection of points where landfill trips become necessary. *Mileage* figures may be obtained by plotting the routes and then calculating the distances between the respective stops. This can be accomplished by either measuring mileage on a DOT highway map or by traveling the route and recording the odometer reading between stops. The inventory of *time* can be accomplished in either of two ways: (a) by traveling the routes followed by the trucks and recording the results with a stopwatch, or (b) by applying several rules of thumb to produce an estimate. The first method is preferred and will require the recorder either to accompany the driver in the collection vehicle or to follow in a second vehicle. The second method will involve making reasonable assumptions, such as an average travel time of 35 mph, an average collection and site clean-up time of four minutes per green box for a one-man crew (two minutes per box for a two-man crew), and an unloading time of 20 minutes for each trip to the landfill.

The route for Monday is shown in Table 4. The time spent in servicing the green boxes as well as in unloading at the landfill should then be added to the driving-time figures obtained in Table 4. This computation for each day will result in the

Table 4

Monday Mileage and Driving Time

Stop	Mileage From Previous Stop	Driving Time From Previous Stop	Cumulative Mileage	Cumulative Driving Time
Start				
1. Brown Cove	4.3	7.4 mins	4.3	7.4 mins.
2. Health Department	1.1	1.9	5.4	9.3
3. Starling	5.5	9.4	10.9	18.7
4. Michaels School	6.0	10.3	16.9	29.0
5. Larson School	0.7	1.2	17.6	30.2
6. Elam's Crossroads	2.2	3.8	19.8	34.0
6a. (Landfill)	6.6	11.3	26.4	45.3
7. Wolf Mountain	7.4	12.7	33.8	58.0
8. Beal's Store	2.2	3.8	36.0	61.8
9. Niven Creek	3.3	5.7	39.3	67.5
9a. (Landfill)	12.9	22.1	52.2	89.6
10. Victory Grove	14.3	24.5	66.5	114.1
11. Davis Hill	4.0	6.9	70.5	121.0
12. Carson Heights	7.5	12.9	78.0	133.9
13. Winter Creek	16.0	27.0	94.0	160.9
13a. (Landfill)	4.4	7.5	98.4	168.4
Finish	9.0	15.4	107.4	183.8 or 3 hrs., 4 mins.

weekly summary of route time and mileage that appears in Table 5. The information gathered in this manner can be useful in many ways. It can, for example, be very helpful in making work assignments and in making cost analyses.

7. **Estimating the cost of operating the collection vehicle.** The annual mileage figures for operating a collection vehicle that are found in Item 6 will be useful in estimating both the annual cost and "per mile" cost of operating the truck. In the studies made to date of western North Carolina collection systems, an average collection vehicle travels about 35,000 miles annually. When the various costs related to mileage (i.e., depreciation, fuel, tires, maintenance, oil, and filters) but not fixed costs (such as insurance, registration, salaries, or administration) are considered, the current annual cost of a new front-loading 32-c.y. collection truck can be estimated at roughly $45,000. The per-mile cost of $1.28 (this figure was calculated by dividing $45,000 by 35,000 miles) can be useful in determining the cost effectiveness of restructuring collection routes. A weekly cutback of 100 miles, for example, would produce an annual reduction of 5,200 miles driven, at an annual savings of $6,656.

Case studies

Several western North Carolina counties have recently undertaken comprehensive studies of their solid waste collection systems. These studies, all of which involved green box collection systems, were prepared by the Division of Community Assistance in conjunction with the Tennessee Valley Authority. Although the central issues addressed in the studies varied from county to county, the common aim was to increase the efficiency of the collection service with existing resources. Consistent with this philosophy, several revisions in the collection system were made that relied heavily on the study methods described in the preceding section of this article as a basis for decision-making. The following are capsule summaries of how these methods were applied in these counties.

Yancey County. In Yancey County, the overall configuration of the county's road network and the rugged topography of the area hindered the efficient routing of collection vehicles. For example, on one route the truck had to go 24.4 miles out of its way from one box to the next because of an extremely steep grade. By placing extra green boxes on remote portions of collection routes but collecting from them less frequently, it was possible to cut down on miles driven in collection and thereby save money.

The collection system study that I conducted in 1980 focused mostly on restructuring collection routes in the isolated and mountainous northern section of the county. The truck that served this area then drove 11,336 miles a year. If the capacities of sites within this northern area were raised and the number of weekly collections reduced, the annual mileage could be cut to 5,775—an annual reduction of 5,561 miles. At a (1980) rate of $1.052 per mile to operate the truck, this rerouting permitted a gross savings of $5,850 over a one-year period—or $35,100, projected over a six-year period (a six-year projection is appropriate, since this is the average life span of a green box). The additional green boxes necessary to effect this mileage cutback cost $7,275. Thus, if this amount is deducted from the six-year saving of $35,100, the county will realize a net savings of $27,825 over a six-year period—or $4,637 annually.

The revisions described for Yancey County also consolidated several green box sites. As a spin-off benefit of these changes, the county was able to free one of its collection crew members for one to

Table 5

Weekly Route Time and Mileage, May-October

	Miles[1]	Driving Time	Green Boxes	Collection Time[2] @ 4 min./box	Landfill[3] Trips	Disposal Time @ 20 min./trip	Total Time
Monday	107.4	3h 04m	64	4h 16m	3	1h 00m	8h 20m
Tuesday	107.9	3h 05m	78	5h 12m	3	1h 00m	9h 17m
Wednesday	120.9	3h 27m	74	4h 56m	3	1h 00m	9h 23m
Thursday	72.2	2h 04m	52	3h 28m	2	40m	6h 12m
Friday	126.4	3h 36m	94	6h 16m	3	1h 00m	10h 52m
Saturday	114.2	3h 16m	85	5h 40m	2	40m	9h 36m
Total week	649.0	18h 32m	447	29h 48m	16	5h 20m	53h 40m
	Total Miles	**Total Time**					
November-April	16,006	1,317					
May-October	16,874	1,395					
Year	32,880	2,712 hrs.					

1. Includes mileage to and from landfill.

2. Collection time shown is maximum (assuming no detailed site cleanup); may be less, depending on number of green boxes that must actually be serviced—some may be empty when collection vehicle arrives.

3. Reflects only those landfill trips that are attributable to green box system; does not include factor for industrial, commercial, etc., wastes that are also collected by green box system operator.

two days per week. This person was then directed to perform site-maintenance duties, such as intensive cleanup of accumulated materials at certain problem sites, which had been needed for many years.

Mitchell County. For the last several years, Mitchell County has contracted with a commercial solid waste hauler to operate its green box collection service. The county administers the system and provides and maintains the green box units and sites. The contractor furnishes and maintains the collection vehicle(s) and directly supervises the collection staff. Almost any contract system like the one used by Mitchell County—that is, one in which a specified service(s) is pledged in return for a specified cost—contains a basic tradeoff. Perhaps the system's greatest benefit to the county is simply that the county is relieved of much of the day-to-day operations. But the county loses its ability to manage these operations as it deems desirable. If, for example, the county saw a need (e.g., intensive cleanup of a site) that is not being addressed properly, it would probably be more difficult under a contracted system than under an in-house system to rearrange personnel, equipment, collection schedules, etc., so that this need could be met. Thus the contract system can be viewed fundamentally as being easier to administer yet less adaptable to change than an in-house system.

Recognizing that such tradeoffs exist, Mitchell County set out to learn whether the county government could provide collection service at a cost less than the current contract price or whether perhaps a less expensive contract should be negotiated. The annual costs of the contracted system of service had been as follows: FY 77-78: $46,969 (actual); FY 78-79: $52,188 (actual); FY 79-80: $47,813 (budgeted).

After a comprehensive study made in 1980 of its existing system of collection, Mitchell County established certain performance standards. It was estimated that—over a one-year period at the existing level of service— 22,438 green boxes were serviced, 832 landfill trips were made, 32,879 miles were traveled by the collection vehicle, and a one-man crew worked 50 to 54 hours per week in performing these duties.

With this newly gathered information, the county estimated the cost of providing a similar level of service on an in-house basis; from this estimate it concluded that the current contract was indeed less expensive than an in-house system would be. The county has since used the performance data in soliciting and evaluating competitive bids from prospective contractors.

Cherokee County. Cherokee County, relatively large and geographically diverse, operates an in-house green box collection system. The nature of the county's system has meant that two collection routes have been operated during the week and a single route on weekends, all staffed normally by one-man crews. An extensive study of the county's collection system undertaken in 1981 in conjunction with the Tennessee Valley Authority showed (among other findings) that the two weekday collection routes were unequal in the amount of time required to conduct them (see Table 6).

Therefore the Route 2 driver had to work over 65 per cent more hours per week than the Route 1 driver did. Before the study statistics were gathered, the county administration had assumed that the routes were equal in workload, and the two drivers were paid the same. When it became clear (and the drivers agreed) that the routes were unequal, the administration decided to restructure the routes to distribute the workload more fairly. The study recommended several specific measures that would reallocate route responsibilities and create a workweek of roughly 34 hours for each of the two routes. First the two drivers were consulted, and then a revised weekly routing schedule was developed and explained in detail to them. The county reported recently that the new routing system, which went into effect in the spring of 1981, has worked "beautifully" and has credited the study for this and several other improvements to the county's collection system.

Other management tools

Besides preparing a preliminary management study, a county may wish to consider several other ways to improve the productivity of its green box system. These include:

An accounting system. The fundamental goal of the accounting system should be to separate the costs of collection (e.g., the green box system) from the costs of disposal (e.g., the landfill). Collection and disposal are two distinct services; for the purposes of both budgeting and management control, they should be treated as separate cost categories.

Table 6

Weekly Route Characteristics (Cherokee County)

	Route 1	Route 2
Number of sites serviced	72	116
Number of boxes serviced	159	292
Green box volume serviced (c.y.)	774	1,498
Number of landfill trips	9	13
Miles traveled	354	567
Overall time on route	25h23m	42h7m

Collection system ordinance. Every county that operates a container type of collection system should adopt and publicize an ordinance that deals specifically with the use of its collection system. The ordinance should specify appropriate penalties for violations. The county should also enlist the cooperation of local law enforcement agencies in enforcing the ordinance.

Public education. Public cooperation in managing the green box system should be fostered through education. Mitchell County, for example, has developed audiovisual materials, while Cherokee County has produced public service radio announcements—all designed to make the average citizen aware of the need for good solid waste management.

The Division of Community Assistance can provide technical help to local governments that wish to explore the management tools described above. It can, for example, give them such materials as sample forms for an accounting system, a model ordinance for a collection system, and appropriate formats and scripts for audiovisual presentations and public service radio announcements. Also, the Institute of Government has prepared a "Model County Ordinance for Solid Waste Management" that is available to local governments.

(continued on page 41)

Continuing to Improve the Court System:
Courts Commission Recommendations

H. Parks Helms

The decade of the 1960s was a time of tremendous progress for the North Carolina Court system: A uniform system was established, the district court and the Court of Appeals were created, and other major organizational changes were made. Since then the challenges to the system have not been that kind of dramatic organizational change, but they are just as important. If not handled appropriately, they will undermine both the system's effectiveness as an institution of justice and its credibility with the public. The challenges have several sources: The workload on judges, district attorneys, clerks, sheriffs, and other court personnel has become overly burdensome. Those officials are not compensated at salaries available in the private sector. Court calendars continue to grow. The state and many local governments find it difficult to provide adequate financial support, and consequently, much of the courts' equipment and facilities are in poor repair. The agencies that must work together in the court system do so without coordinating their efforts. Finally, providing competent legal services to the needy remains an expensive and difficult problem.

To improve the administration of justice and enhance the stature of the courts, the present North Carolina Courts Commission was established in 1979 to make continuing studies of the structure, organization, jurisdiction, procedure, and personnel of the Judicial Department and the General Court of Justice and to make recommendations to the General Assembly for improving the courts. The Commission—which is composed of representatives of the various agencies of the judiciary (judges, clerks of court, district attorneys, magistrates), legislators, lawyers, lay people—has worked diligently to draft legislation that will enable the courts and the Administrative Office of the Courts (AOC) to function more effectively. In the 1983 legislative session, the Commission proposed fifteen separate bills, nine of which were ratified. (See Table 1.) Five other bills are still being held in legislative committees and may be considered when the General Assembly reconvenes in June 1984.

Before examining the Commission's proposals in detail, it is important to understand the framework within which these bills were prepared (in the fall of 1982). Commission members were aware of the effects of the nationwide recession on North Carolina's revenues when the General Assembly convened in Raleigh last January. Thus they concluded that they would have to find ways to improve the courts' ability to discharge their duties without much additional spending. The Commission's fifteen bills reflect its efforts to provide realistic and meaningful improvements to the court system. This article discusses the Commission's major proposals. Its other proposals and their legislative status at the end of the 1983 session are shown on the next page.

Decriminalizing minor traffic offenses

During the Commission's review of the criminal courts, the suggestion it heard most often was that the handling of minor traffic cases should be improved. In response to both those suggestions and a resolution by the 1979 General Assembly directing it to study the issue, the Commission—after studying several options for three years—recommended in its 1983 report that minor traffic offenses be classified as noncriminal infractions (at present they are crimes) and that they be retained in the court system with simplified hearing and appeal procedures. (See the article by James C. Drennan in

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the Winter 1980 issue of *Popular Government.*)

To understand how those recommendations would affect the courts, it is useful to review some statistics. In 1981-82, including both minor and serious offenses, over 675,000 motor vehicle offenses were charged. Of that number, over 380,000 defendants waived their right to appear in court and paid a prescribed fine and costs by mail or before a clerk or magistrate. The remaining cases were either dismissed before trial or disposed of in court. The motor vehicle cases that actually went to trial included serious offenses like driving under the influence, reckless driving, and racing, but they also included an estimated 100,000 minor offenses.

The Commission found those numbers significant. First, while the total number of traffic cases is quite large, the cases that actually require court time are a relatively small number for the court system to handle, since it has over 140 district court judges, 100 clerks of court, and 35 district attorneys—with all of their staff—available statewide. The Commission concluded that creating a new agency to hear traffic cases would be very expensive and would duplicate services and facilities already available in the court system. This judgment is reinforced by statistics indicating that almost 100,000 fewer traffic offenses were charged in 1981-82 than in 1979-80.

That basic decision, however, does not offer any improvement in the present system in two troublesome aspects. A motor vehicle offense is still a crime, and that categorization has several negative features. It gives every person convicted of even a minor motor vehicle offense a criminal record. It also allows those charged with minor traffic offenses the full range of procedural protection given to those charged with much more serious crimes; the result is sometimes an expensive jury trial for a very minor offense or, much more often, a plea reduction or dismissal by the prosecutor to avoid that trial.

In addition, the Commission found that the workload caused by trying minor traffic cases was unevenly distributed across the state. In the more rural counties, where fewer offenses are charged, traffic cases do not significantly contribute to the workload of the district court. But in the state's urban counties, the large number of traffic cases often makes it difficult for district court judges to meet the needs of litigants in juvenile, domestic relations, civil, and criminal courts. Amendments in 1983 to the drunken-driving, domestic relations, and involuntary commitment statutes will only aggravate that problem.

The Commission believes its recommendations address these problems. It first recommended that all minor moving violations and parking violations be classified as infractions. Infractions are defined as noncriminal and are punishable only by a monetary penalty that is distributed to local school units as criminal fines are. This categorization means that persons charged have no criminal record. It also means they have no right to a jury trial in superior court. The Commission believes that this tradeoff is fair because it provides a procedure for a fair hearing in district court for any driver who wants to contest a charge. It retains the require-

Table 1

1983 North Carolina Courts Commission Bills

Bill No.	Introducer	Summary	Status As of July 21, 1983 (Adjournment Date)
310	Helms	Recall of retired judges.	House Appropriations; is eligible for consideration in 1984.
447	Blue	Out-of-county jury selection.	Reported unfavorably.
448	Hunter	Service of process is small-claims, eviction cases.	Ratified as Ch. 332.
455	Hunter	Standard probation conditions.	Ratified as Ch. 561.
457	Etheridge	Indigent counsel fee factors.	Incorporated in S 23; ratified as Chapter 761.
458	Etheridge	DAs, AG must be lawyers.	Ratified as Ch. 298; on ballot in November 1984.
473	Musslewhite	Magistrate salary credit.	House Appropriations; is eligible for consideration in 1984.
474	Musslewhite	Attorney fees in civil actions.	Senate Judiciary No. 3; is eligible for consideration in 1984.
475	Musslewhite	Filing of discovery papers.	Ratified as Ch. 201.
491	Helms	Decriminalization of traffic cases.	House Appropriations; is eligible for consideration in 1984.
492	Helms	Juror pay increase.	Incorporated as H 33; ratified as Ch. 88.
493	Helms	Appeal of utility cases.	Ratified as Ch. 526.
494	Helms	Court cost increase.	Incorporated in H 278; ratified as Ch. 713.
899	Helms	District attorneys' conference.	Incorporated in S 23; ratified as Ch. 761.
1285	Helms	Indigent defense regulations.	Senate Special Ways and Means; is eligible for consideration in 1984.

ment that the state prove the defendant guilty beyond a reasonable doubt, and it also allows the person charged to petition the superior court for review of the district court's decision. This petition would take the form of an independent civil action instead of a criminal appeal.

To encourage motorists to appear in court or pay the fine imposed by the court, the Commission further recommended that drivers' licenses be revoked if they fail to appear or pay the penalty. The revocation would stay in force until the driver appeared or paid the fine. The Commission also recommended that the revocation not be effective until thirty days after the driver was notified of the order so that any person who mistakenly was to have his license revoked could correct the error. Those who were not charged in error would also be given an additional impetus to appear or pay the fine before revocation became effective.

The revocation procedure recommended by the Commission would reduce the burdens on the clerks of court and sheriffs created by the current procedures for handling persons who do not appear in court. At present, to secure the appearance of one who does not appear, an order for his arrest is usually issued. The sheriff must then try to locate the defendant and arrest him, a costly and time-consuming procedure. The Commission believes that the recommended revocation procedure would be more effective in securing court appearances and collecting penalties and also less costly.

In most counties, hearings on traffic-infraction charges would be held by district court judges just as criminal traffic cases are heard now. But this procedure leaves unaddressed the urban counties' concern about overloaded traffic dockets and their effect on the district court as a whole. The Commission considered several alternatives to the present system and finally concluded that the best answer is to let magistrates hold infraction hearings under strictly controlled circumstances. The Commission is well aware that under the present magisterial system, the irregular hours and low pay make it difficult to attract and retain highly competent persons to the job. Still, it believes that there are excellent magistrates in almost every community who could be of invaluable assistance to district court judges in disposing of minor traffic cases.

Under the Commission's proposal, magistrates would be allowed to preside over infraction hearings only when the chief district court judge, the clerk of court, and the Director of the Administrative Office of the Courts (AOC) agree that use of magistrates will facilitate the administration of justice in the county. When those officials reach that determination, the chief judge must designate which magistrates will hear infraction hearings. The magistrates selected must then complete a special training course before they may conduct hearings. The magistrate must not have responsibility in any criminal cases while he conducts infraction hearings.[1] The Commission also recommended that hearings be held in a courtroom and that the magistrate's decisions be appealable to the district court. This appeal provision probably would not be used often, but its presence serves as a safeguard against abuse.

One important aspect of the Commission's proposal to decriminalize traffic cases is determining which offenses should be infractions. Traffic offenses like reckless driving that now require a court appearance would, with a few exceptions, remain crimes (misdemeanors). The offenses (such as speeding 65 mph in a 55-mph zone) for which an appearance may now be waived would all be classified as infractions. In addition, the Commission recommends that parking violations, which now may be prosecuted in criminal court, be reclassified as infractions. The Commission does not now recommend that any nontraffic offenses be classified as infractions, but if this new procedure does not create any significant problems and actually helps the courts function more efficiently, the Commission believes that some nontraffic offenses perhaps should be classified as infractions in the future.

The Commission's recommendation with respect to decriminalization of minor traffic offenses was introduced as House Bill 491 in the 1983 General Assembly. While it was not voted on before adjournment, it is eligible for consideration in the short session that will convene in June 1984. The discussion and debate that took place in committee and on the House floor before adjournment indicated a reluctance on the General Assembly's part to make this fundamental change in the way these cases are handled. Legislators expressed concern about the driver's loss of the right to a jury trial; about magistrates' ability to conduct infraction hearings fairly and impartially; and about the effect the change in procedure might have on the unified court system that was so carefully and painstakingly constructed in the 1960s.

The need remains for the General Assembly to improve the efficiency and effectiveness of the court system. The enactment of the Safe Roads Act, which gives North Carolina one of the toughest drunk-driving laws in the nation, is sure to affect dramatically the court system's ability to handle its caseload. That statute gives magistrates an increasingly important role in driving-while-impaired cases, and if their new responsibilities are handled successfully, the General Assembly may be less reluctant to increase magisterial responsibility for traffic offenses, as House Bill 491 proposes. In any event, the Courts Commission believes that the legislature must be responsive to the increasing demands being placed on the administration of justice in North Carolina and must be willing to make appropriate procedural changes—such as decriminalizing minor traffic offenses to accommodate these new demands.

Funding the indigent legal defense program

North Carolina law provides that whenever certain persons involuntarily named as a party in a case are determined to be indigent, it is the state's responsibility to provide them with counsel and other necessary expenses of representation. The statutes regulating appointment of counsel enacted in 1969 (although they have since been amended) call for representation in fifteen kinds of proceedings. Seven are proceedings related to criminal actions, two are juvenile actions, and the others deal with matters like involuntary commitment, incompetency proceedings, termination of parental rights, and sterilization proceedings. In most of these proceedings, the state is required by the federal Constitution as interpreted by the U.S. Supreme Court to provide counsel. In other instances, the General Assembly has provided legal representation as a matter of public policy even though it is not constitutionally required.

1. This requirement addresses the concern of those who believe that having magistrates who deal with the police in an essentially nonadversary relationship as they issue warrants means that the same magistrates should not act as a judge in a case initiated by those officers.

The legal services provided by the state are administered in one of two ways. In some judicial districts, the state has established a public defender's office. Public defenders are state employees who are paid an annual salary. They represent indigent criminal defendants as well as juveniles charged with criminal acts. In addition, attorneys in private practice who are not state employees but are assigned by the court and are compensated on a case-by-case basis are used for certain types of cases. In districts where there are no public defenders, all services for indigents are provided by court-assigned private attorneys.

Since the indigent defense program began, both the number of persons it serves and its total costs have risen dramatically. The annual appropriations during that period (1969-present) have generally been high enough to pay for the cost of the program for the preceding year but not for any increase in costs. The AOC paid for those increases by using funds appropriated to the judiciary for other purposes (usually unexpended salary funds). This pattern continued until 1983, when—after ten years of borrowing from other sources within its own budget—the Judicial Department faced a $3.1 million shortfall in March and those other sources were not available to use in paying private attorneys for the last four months of fiscal 1982-83. The AOC sought an emergency special appropriation to pay for the shortfall. That request was not granted, but the appropriation to the AOC for FY 83-84 included funds to pay all the unpaid bills from March through June 1983.

Despite this shortfall, there is no evidence to indicate that the costs of the indigent defense program are out of control. From 1971-72 to 1981-82, the cost per criminal case rose from $162 to $186, a rise of about 15 per cent, which is far less than the inflation rate over that same ten-year period. The increasing cost of the system has been caused by the increasing number of cases. During that same decade they rose from 9,600 per year to 34,600 per year. This sharp increase is largely due to the expanded scope of individual protection provided by the U.S. Constitution and state statutes and to the courts' overall increased caseload.

One way to deal with this problem is to appropriate more money. Another approach is to use present resources more efficiently. Toward the latter end, the Courts Commission made a three-part recommendation to the General Assembly with regard to the indigent defense program. First, it recommended that the General Assembly establish public defender offices in areas of the state where it would be cost effective to do so (seven of the state's 34 judicial districts now have public defenders). Until recently, little empirical information was available on the cost per case for private counsel and public defenders, but a study conducted by the State Budget Office, at the Commission's request, has shown that in some counties the public defender system may be a good deal less expensive per case than paying private attorneys. At the same time, in other counties the public defender system would almost certainly cost more than payments to private counsel. Another study done at the Commission's request indicated that unless a county spends at least $225,000 per year on assigned counsel, the public defender program would probably not cost less than the assigned-counsel system. But even in counties where the public defender system would cost less than assigned counsel, other factors may weigh against establishing the system. For example, aside from the issue of cost, the Commission feels that the private bar should participate in the criminal courts as much as possible. It recommends that in districts where there is a public defender's office, the office should not handle any more than 70 per cent of the criminal cases.

The Commission's second recommendation pertaining to legal services for indigents was that the AOC be authorized to issue regulations and guidelines for determining indigency and assigning counsel. By statute, this responsibility now rests with the bar councils in districts where there is no public defender's office, but the bar councils have largely abdicated this responsibility to the senior resident superior court judge. The Commission feels that shifting this burden to the AOC will allow that office to respond faster and more flexibly to the program's financial needs. HB 1285, which would make this change has passed the House and awaits Senate action in 1984.

The Commission's final recommendation was that the General Assembly separate the indigent defense program's appropriation from the rest of the Judicial Department's appropriation. The Commission feels that requests for this program should be considered independently of needs for the court system's other components and that the amount appropriated to indigent defense should be administered separately from the funds appropriated to the rest of the system. Such treatment would be fairer to both the indigent program and the court system as a whole. A provision has inserted in the main appropriation bill to implement this recommendation.

Administration of the district attorneys' offices

The Commission, with the goal of improving the administration of the district attorneys' offices across the state, recommended to the General Assembly that a Conference of District Attorneys and an Office of Administrator for Prosecution Services be established. (The amended recommendation was adopted as part of Ch. 761 of the 1983 session.) This idea is not new. Every group that has studied the structure of prosecutors' offices since 1933 has recommended it, and the current Standards for Prosecution Services of the American Bar Association contains such a recommendation. Most states have similar conferences. All of these groups and states recognize that district attorneys have common administrative problems and needs and that they need both management advice and a forum to encourage consistency of policy and to facilitate the sharing of new ideas and the discussion of common problems.

The Commission believed that the proposed Conference of District Attorneys could not do these things without a competent administrator who knows the problems of managing a criminal justice system and is trusted by the district attorneys. The administrative support now provided by the AOC and the continuing education provided by the Institute of Government are not designed to meet the management needs of individual prosecutors' offices. The Commission recommended to the General Assembly that the position of Administrator for Prosecution Services be established in the AOC. The Administrator would be hired for a two-year term as Executive Secretary of the Conference by the Director of the AOC. This structure seemed to some legislators to involve the AOC too directly in the management of district attorneys' offices. To deal with that concern, the recommendation was modified to delete the position of Administrator of Prosecuting Services. In response to the amended recommenda-

tion, the General Assembly created the Conference of District Attorneys, of which every district attorney in North Carolina is a member; it then authorized the Conference to hire an executive secretary and any necessary supporting staff to assist it in improving the administration of justice. The statute makes it clear that the hiring of an executive secretary is solely in the discretion of the Conference.

The Commission believes that this recommendation will make a long-term improvement in the criminal courts without altering the basic allocation of responsibilities in the court system or reassigning responsibilities to other agencies. It also believes that the recommendation will ultimately reduce the need for new personnel by enabling district attorneys to use their present personnel more effectively.

Assistance to witnesses

Improving services to witnesses and victims who appear in court is another way to restore public confidence in the court system. To do that, the Commission joins the AOC, the Governor's Crime Commission, and the Governor's Task Force on Drunken Driving in recommending that the program of assistance to witnesses and victims be expanded statewide. This program, now funded in ten judicial districts, provides valuable services to witnesses—particularly victims—who appear in court. Assistance coordinators advise witnesses when they should appear, tell them what to expect, tell them how to file for any reimbursement to which they may be entitled, and generally interpret the sometimes unfamiliar procedures and customs of the court system. They also aid prosecutors by advising them of the availability of witnesses. This service is invaluable to both witnesses and the court.

Conclusion

The courts belong to all the people of North Carolina and not just the judges, lawyers, clerks, and other court personnel. The Courts Commission's recommendations are intended to expedite the courts' work and to make the best use of their resources. But the Commission feels strongly that the courts' credibility should never be sacrificed to mere expediency. If the courts are to remain a force in society, they must have the respect and trust of those who use them. ●

Other Courts Commission Recommendations

In addition to the issues just discussed in this article, the Courts Commission considered a number of matters on which it developed specific recommendations to the General Assembly. Here is a brief summary of some of those issues:

Implementing provisions in the State Constitution. The Commission proposed legislation to implement two provisions in the State Constitution. One was an amendment (to Art. IV, Sec. 12) that had originally been proposed by the Commission and was approved by the voters in 1982. It allowed State Utilities Commission rulings to be reviewed directly by the State Supreme Court without being reviewed by the Court of Appeals first. Legislation to implement this amendment (HB 493) was enacted as Ch. 526. Another provision (Art. IV, Sec. 8) authorized the General Assembly to allow the Supreme Court and the Court of Appeals to recall retired judges from either of those courts for temporary service on either court. Legislation to implement this provision (HB 310) did not pass in 1983 but will still be before the General Assembly in 1984.

Attorney fees in nonjusticiable cases. In an effort to discourage frivolous law suits, the Commission recommended passage of a statute similar to a Florida law that allows the winning party in a civil suit to collect attorney fees from the loser if the judge finds that there was a complete absence of justiciable issue or fact. This proposal (H 474) passed the House in 1983 and can be considered by the Senate in 1984.

Service of process in summary ejectment and other small-claims cases. To simplify work for the state's sheriffs and to satisfy the constitutional requirements for notice set forth by the U.S. Supreme Court, the Commission recommended that a sheriff who is unable to find a defendant in a summary ejectment case be authorized to serve process by posting copies on the premises and mailing a copy of the process by first-class mail to the defendant at his last known address. Seeking to encourage the use of mail to serve process in small-claims cases, the Commission recommended that the statutes for service of process by mail in small-claims cases be simplified to read as they do for mail service in other civil cases. Ch. 332 implements this recommendation.

Filing depositions and other discovery papers with the clerk. The Commission found that one of the biggest problems faced by clerks of superior court is storage space for depositions and other discovery papers that may never be used in court. It recommended adoption of a procedure used in federal district court: discovery papers are filed with a clerk only if the court orders that they be filed or at the time they are needed in the proceeding. Ch. 201 implements this recommendation.

Attorney General and district attorneys must be lawyers. The Attorney General and the district attorney are the persons responsible for representing the state in court, yet neither is required by the Constitution to be an attorney. Judges must now be attorneys, and the Commission sees no reason for not placing this requirement also on those who represent the state in court. Accordingly, it recommended that a constitutional amendment be placed on the ballot requiring that district attorneys and the Attorney General be attorneys licensed to practice in North Carolina. Ch. 298 places that issue before the voters in November of 1984.

Miscellaneous. Finally, the Commission made a number of other recommendations dealing with such matters as the conditions of probation, the setting of bail, costs of court and juror fees, magistrates' salary credit for court experience, and the ongoing equipment and personnel needs of the court system.

The Separation of Powers in North Carolina—A 1984 Update

Ann L. Sawyer

The division of governmental power among the legislative, executive, and judicial branches and the principle that one branch shall not encroach on another's authority are two basic tenets of our state and federal governments. This doctrine is expressed in Article 1, Section 6, of the North Carolina Constitution, which states: "[T]he legislative, executive, and supreme judicial powers of the State government shall be forever separate and distinct from each other." First verbalized in North Carolina in the Declaration of Rights of 1776, this principle was intended to preclude any official or entity from exercising at the same time the powers of more than one governmental branch, thus preserving the ability of each branch to restrain the others' actions and thereby prevent abuses of power. Although the separation-of-powers rule has been an integral part of our country's governmental systems since their formation, its application to particular circumstances has been infrequent. The past several years have seen a resurgence of debate over how this long-established principle relates to contemporary laws, and recently the doctrine has been applied by a number of courts—including the North Carolina Supreme Court and the United States Supreme Court—to invalidate particular legislative enactments. This article will describe North Carolina's experience with the separation-of-powers question by (1) reviewing the State Supreme Court's decision on that issue in 1982 and the Court's subsequent advisory opinion that gave a modern interpretation to the doctrine,[1] and (2) outlining the General Assembly's continuing response to the 1982 court actions. It will then discuss some of the unresolved questions and possible trends that still surround the issue.

In January 1982, the North Carolina Supreme Court, in *State ex rel. Wallace et al. v. Bone et al.*,[2] addressed the constitutionality of a statute that required the appointment of four legislators (two Representatives by the Speaker of the House and two Senators by the President of the Senate) to the seventeen-member Environmental Management Commission (EMC). The Court cited Article 1, Section 6, of the North Carolina Constitution, which mandates the separation of powers. It also referred to Article II, Section 1, which provides that "[t]he legislative powers of the State shall be vested in the General Assembly, which shall consist of a Senate and a House of Representatives" and to Article III, Section 1, which provides that "[t]he executive power of the State shall be vested in the Governor." The Court then found that the EMC had been authorized by statute to exercise a number of executive functions (for example, to adopt air quality standards, review local air pollution control programs, and grant water use permits) and that these duties "have no relation to the

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1. For a more complete discussion, see "The Separation of Powers in North Carolina" by Milton S. Heath, Jr., in the Fall 1982 issue of *Popular Government*.

2. 304 N.C. 591, 286 S.E.2d 79 (1982).

function of the legislative branch of government, which is to make laws." The Court concluded that the legislature cannot create "a special instrumentality of government to implement specific legislation" and retain some control over the implementation process by appointing legislators to the agency's governing body. It then declared unconstitutional the statutory requirement that four legislators serve on the EMC.

The Attorney General sent a letter to all legislators suggesting that they resign from any state board or commission that exercises administrative or executive functions.[3] The letter specifically referred to the Advisory Budget Commission, the hybrid executive-legislative body that advises the Governor on preparation of the budget, and stated that in order for legislators to remain on the Commission it was essential that the Commission limit its role to matters purely advisory in nature.

The *Bone* decision dealt with one aspect of separation of powers: the validity of appointing legislators to executive commissions. Soon after that decision, the Chief Justice and the Associate Justices of the Supreme Court issued an advisory opinion[4] dealing with another aspect of separation of powers: the validity of legislative involvement in administering the state budget. The advisory opinion dealt with two laws enacted in 1981. One of the new laws (S.L. 1981, Ch. 1127, sec. 82) prohibited the transfer of more than 10 per cent of the amount appropriated for any line item unless the transfer was approved by the Joint Legislative Commission on Governmental Operations, an all-legislator body created in 1975 to conduct a continuing review of state government operations. Moreover, prior approval of the Joint Commission was required for any transfer or change from salary funds, regardless of amount. The other new law (S.L. 1981, Ch. 1127, sec. 63) (a) required that the General Assembly "receive" all federal block grant funds on behalf of the state between August 31, 1981, and July 1, 1983; and (b) required prior approval by either the General Assembly, if it was in session, or a newly established Joint Legislative Committee to Review Federal Block Grant Funds before any significant action could be taken concerning those funds, including pro rata reductions, transfers, adoption of departmental rules, and "any other final action affecting acceptance or use of federal block grant funds." In both cases, the Justices said in their advisory opinion, the statutes violated the provisions of the State Constitution that require separation of powers and make the Governor responsible for preparing the state budget. Although the Constitution authorizes the General Assembly to *enact* a budget, the Justices said, *administration* of the budget as enacted by the General Assembly is the Governor's sole responsibility under Article III, Section 5(3), of the State Constitution. The laws at issue encroached on the Governor's duties and responsibilities and thus violated the principle of separation of powers. With regard to the procedure for administering block grants, the Court found an added reason to invalidate the enabling legislation: Delegating the authority to approve block grants to a legislative committee is unlawful because the General Assembly may not delegate to a lesser legislative body the power to make decisions like the ones involved in grant approval on the legislature's behalf.

The legislative response—1982 session

Because of the doubt cast by the *Bone* decision on the legal status of numerous boards and commissions on which legislators served, a special Legislative Research Committee (LRC) study committee immediately began working to recommend changes in laws prescribing the composition of state boards that have executive functions. The Committee's initial recommendations were incorporated into the Separation of Powers Act of 1982,[5] which prohibited legislators from serving on 32 such state boards and commissions. The act also addressed the specific powers delegated to the Social Services Commission, one of many state boards that have executive functions. The 1982 Separation of Powers Act repealed the Commission's authority to set rates or fees for social services, to set eligibility standards, and to designate services to be provided, effective July 1, 1983. Beginning on that date, those powers would be directly exercised instead by the General Assembly.

The legislature continues to respond—1982-83

Following the 1982 legislative session, the LRC study committee resumed its task, devoting most of the remainder of the year to an analysis of the Advisory Budget Commission (ABC), the agency created to advise the Governor on preparation of the comprehensive biennial budget of all state expenditures. This study produced 1983 legislation that revised many of the ABC's powers while maintaining its budget advisory role. In addition to enacting legislation concerning the ABC, the 1983 General Assembly completed the review of executive agencies begun in 1982 by adding several more of these agency boards to the list on which legislators may not serve. Then in a flurry of activity during the final days of the 1983 session, the General Assembly passed a series of bills that will affect the operations of all state executive agencies.

First, *all* state agency rules adopted under the Administrative Procedure Act that are in effect on January

3. Letter of February 19, 1982, from Attorney General Rufus L. Edmisten to all legislators.

4. Advisory Opinion *in re* Separation of Powers, 305 N.C. 767 (N.C. Appendix) (1982)

5. N.C. Sess. Laws 1981, second session (1982), Ch. 1191.

1, 1985, are repealed, "unless approved by the 1985 Session of the General Assembly."

Second, the legislative committee that was responsible for reviewing all new agency rules to determine whether they were within the agency's statutory authorization was abolished. It was replaced by the Governor's Administrative Rules Review Commission, which was authorized to review rules on the basis of expanded standards and to veto rules it finds not to meet those standards. This Commission, although statutorily located in the executive branch, has a majority of its members appointed by the legislature.

Finally, the Administrative Procedure Act, which establishes uniform procedures by which agencies must deal with the public and provides for those decisions to be reviewed by courts, was repealed as of July 1, 1985, except for its rule-making provisions.

Thus one could conclude that the *Bone* decision, which was intended to prevent legislative participation in the administration of laws enacted by it, has contributed to greater legislative involvement in state agency activities than existed when a few legislators comprised a minority of the membership of selected administrative boards and commissions. The remainder of this article will discuss the 1983 legislation and its implications in greater detail.

The ABC becomes advisory again

Since its creation in the 1925 Executive Budget Act, the Advisory Budget Commission (ABC) has played an increasingly large role in formulating and administering the state budget. The 1925 act, which was passed to bring order to the state's chaotic budgeting and appropriations processes, empowered the ABC to advise the Governor in preparing the comprehensive biennial budget for all state expenditures. The Governor's proposals were then jointly recommended by him and the ABC to the General Assembly, which enacted the state budget. The ABC provided a mechanism through which a small group of informed legislators could assist their colleagues during their deliberations on appropriations matters. And since the General Assembly spent only a few months in Raleigh over a two-year period, the system allowed a small group of legislators knowledgeable about expenditures and revenues to provide some continuity on appropriations matters while the General Assembly was not in session. The original Commission had six members: the chairmen of the House and Senate Finance and Appropriations committees, plus two persons appointed by the Governor. The Executive Budget Act made it clear that the Governor was responsible for recommending a budget to the General Assembly and that the ABC was solely an advisory body; if members of the Commission disagreed with the Governor's recommendations, the Governor decided what recommendations would go to the General Assembly, accompanied by any particulars of disagreement stated by the Commission. This statutory procedure is still law today. Dissents by the ABC are rare to nonexistent; the Governor and ABC members reach accommodation before the report is filed.

The first departure from the ABC's strictly advisory role occurred in 1927. The Governor, in his role as administrator of the budget as enacted by the General Assembly, originally had the exclusive authority to make allotments of the moneys appropriated to each state agency. Legislation adopted in 1927 required that the ABC concur in any gubernatorial decision to reduce pro rata the amounts allotted to state agencies when a revenue shortfall occurred. Other statutory changes further involving the ABC in administration of the budget followed much later. For example, in 1955 the Executive Budget Act was amended to give the ABC sole authority to recommend a budget for and to exercise control over budgets of the Offices of the State Auditor and the State Treasurer. This change was intended to ensure the independence of the postauditing function (which legislators find a useful check on executive agency activities) and the investment and disbursing of state revenues.

In addition to amending the Executive Budget Act occasionally to require ABC approval before certain expenditures could be made, the General Assembly expanded the ABC's authority by amending numerous other statutes. For example, the salaries of various state officials—including the Commissioner of Revenue, the Commissioner of Motor Vehicles, and the Chairman and members of the Industrial and Utilities commissions—were required by statute to be set by the Governor subject to the approval of or in concurrence with the ABC. Other new statutes required ABC approval before bonds could be issued to finance specific projects. Finally, the biennial appropriations bills became an increasingly frequent source of new authority for the ABC. One report listed twenty-three references to the ABC in appropriations bills approved by the 1979 General Assembly.[6]

Thus it had become increasingly clear by 1982 that the ABC's role had greatly expanded since 1925 and that although budget preparation remained the ABC's most important function, budget administration had become its most time-consuming activity. The Commission's pervasive role extended beyond the terms of the Executive Budget Act, appropriations bills, and related statutes. For instance, it was not uncommon for a cautious agency head to request ABC approval before taking a financial action if his authority to do so was unclear. Membership on the Commission, always prized, also expanded to reflect the Commission's larger role. Most recently, the 1983 General Assembly expanded the ABC membership by three, giving a current statutory composition of ten legislators (the Appropriations and Finance Committee Chairmen from each House, three other Senators appointed by the Presi-

6. N.C. Center for Public Policy Research, Inc., *The Advisory Budget Commission—Not As Simple As ABC*, 19 (March 1980).

dent of the Senate, and three other Representatives chosen by the House Speaker) and five members selected by the Governor.[7] To maintain balance between the two houses, the 1983 law also required that if the Governor appoints legislators to the ABC, he must appoint equal numbers from the House and Senate.[8]

As noted earlier in this article, the *Bone* decision and the advisory opinion issued by the Supreme Court Justices one month later suggested to some observers that the exercise of budget administration functions by a body that contains legislators may violate the State Constitution's separation-of-powers provision. This view was reflected in a letter sent to all legislators by the Attorney General.[9] He suggested that all functions and duties exercised by the ABC, other than those purely advisory, immediately cease. The Attorney General added that because the ABC's role in formulating and preparing the budget is vital, those legislators who were ABC members should not resign; however, they should limit their role to matters purely advisory in nature.

Clearly, some changes were going to be necessary, so the LRC committee reviewed statutes concerning the ABC to prepare legislation for 1983. If legislators were to continue to serve on the Commission, the *Bone* decision and subsequent advisory opinion required that the Commission cease exercising executive powers. In determining the proper constitutional role for the ABC, the budgetary process itself had to be re-evaluated. The State Constitution directs the Governor to prepare and recommend to the General Assembly a comprehensive budget of the anticipated revenue and proposed expenditures of the state for the coming fiscal year or biennium. The General Assembly then reviews the budgetary proposals and enacts a state budget. Administering the budget, including making necessary monetary transfers and changes, is the constitutional duty of the Governor.[10]

The 1983 Separation of Powers Act[11] addresses these respective roles and makes the following significant changes in the budget process (and as a corollary, in the powers of the ABC):

1. The General Assembly reverted to the practice of *setting by statute the specific salaries* of several high-level executive branch officials. (The General Assembly had gradually delegated this duty to the Governor several years ago, subject to ABC approval of the salaries set. Thus the 1983 General Assembly exercised its prerogative to put more detail in the appropriations act and eliminated an executive function that the Commission could no longer perform if legislators were to continue to serve on it. The state officials brought under this salary-setting provision include the Secretary of Revenue, the Chairman of the Alcoholic Beverage Control Commission, the Commissioner of Motor Vehicles, the Chief and Deputy Banking Commissioners, the Chairmen of the Employment Security and Industrial Commissions, Parole Commission members, the State Personnel Director, and the President of the State Department of Community Colleges. Except as otherwise provided by law, salaries of other state administrative officers not subject to the State Personnel Act will be set by the Governor after consulting with the ABC; formerly, ABC approval was required to set these salaries.

2. *Statutory provisions that required ABC approval for a number of actions by state agencies*, especially specific kinds of money transfers, *were deleted*, thus removing the ABC from direct involvement in administering the budget. In many cases, the state agency must now *consult* the ABC in lieu of gaining its approval; in other cases, ABC approval is no longer required but the action must be approved by the Governor as Director of the Budget, by a state agency, or by the General Assembly.

3. *The ABC's advisory role in budget preparation remains intact.* This function is clearly stated in G.S. 143-10, unchanged in 1983, which requires the Commission to "act at all times in an advisory capacity to the Director on matters relating to the plan of proposed expenditures of the State government and the means of financing the same." Thus the Governor's recommended budget will continue to bear the seal of approval by several legislative leaders, thereby making it less vulnerable to alteration when it enters the legislative halls.

[The LRC committee made no proposal concerning the provision in G.S. 143-4 that the ABC alone is responsible for recommending to the legislature budgets for the State Auditor, the State Treasurer, and the Administrative Office of the Courts. This provision appears to conflict with both (a) the provision in Article III, Section 5(3), of the State Constitution that the Governor shall prepare and recommend the state budget; and (b) the intent of the remainder of the 1983 legislation, which was to remove the ABC's executive and administrative powers. While considering this issue, the LRC committee heard presentations from the State Auditor and the State Treasurer about the need for fiscal independence from the Governor. The committee recommended further study of the issue.]

In approving the Separation of Powers Act of 1983, the General Assembly completed work on the LRC study committee recommendations that responded to the *Bone* decision and its aftermath. Thus by the end of the 1983 session, the review of state boards and commissions that had legislator members had been completed. Legislators had been prohibited from serving on boards that have executive powers but remained eligible for service on boards that have only advisory powers. Where necessary, board powers had been amended to ensure that the boards were advisory only, as was done with the ABC. However, the General Assembly did not confine itself merely to cataloguing which state agencies have—and should continue to

7. N.C. Sess. Laws 1983, Ch. 48.

8. In recent years, Governors have tended to appoint current and former legislators to the ABC.

9. *Op. cit. supra* note 2.

10. This procedure is set forth in N.C. Const. art. III, § 5(3).

11. N.C. Sess. Laws 1983, Ch. 717.

have—executive functions. It simultaneously began to take a broader look at how state agencies exercise their executive powers. The General Assembly was concerned not only about the separation-of-powers implications of legislators' serving on state boards and commissions but also about how powers exercised by those agencies affected their constituents, a concern that grew when it became apparent that legislators could no longer directly participate in the exercise of significant administrative functions.

1983 legislation affecting agency procedures

The first official indication of this concern surfaced in the provision of the 1982 Separation of Powers Act that repealed specific rule-making authority of the Social Services Commission, effective July 1, 1983, because of legislative objections to the Commission's exercise of its rule-making authority in selected areas. Since executive agencies are creatures of statute and receive their authority through powers delegated to them by the legislature when it adopts enabling legislation, the General Assembly may, consistent with the Constitution, withdraw those delegated powers. The 1982 legislation provided that certain matters over which the Social Services Commission had been given rule-making authority would instead be handled directly by the General Assembly. Some legislators had indicated in 1982 that other executive agencies also stood to lose some or all of the powers previously delegated to them if they did not exercise their authority in the way the General Assembly considered consistent with legislative intent.

The 1982 legislative repeal of specific Social Services Commission rule-making powers was a serious prospective loss of authority by that agency. Typically, an agency uses rule-making to implement or flesh out the laws it is responsible for enforcing. The laws themselves are drafted by the legislature; however, the complex nature of many laws and the impossibility of anticipating and addressing every conceivable question that could arise in the course of administering these laws has prompted the General Assembly, as well as other state legislatures and the United States Congress, to delegate part of the legislative power to administrative agencies. North Carolina courts have held that the General Assembly may not delegate its policy-making power to agencies; however, it may set policy and delegate to an administrative agency the power to find facts to which the legislatively declared policy will apply, so long as the legislative delegation of power contains sufficient standards to guide the agency in its actions.

The growth of executive branch agencies with administrative powers, such as rule-making, and the lack of public accountability for the agencies' activities brought about comprehensive state and federal administrative procedure acts. North Carolina's Administrative Procedure Act (APA), which was passed in 1974 and took effect on February 1, 1976, established uniform procedures for agency rule-making and quasi-judicial activities and required that the public be allowed to participate in agency actions that affect them. With several exceptions, the North Carolina APA (G.S. Ch. 150A) applies to the executive agencies, boards, departments, and commissions (over 250 of them) in state government—including such diverse groups as the Savings and Loan Commission, the Council on the Status of Women, the Tax Review Board, the Commissioner of Insurance, the Pesticide Board, the Social Services Commission, the Zoological Park Council, and the State Board of Barber Examiners. (Local governments are not under the APA.)

Since at least 1977, the General Assembly has sought to prevent unwarranted rule-making by state agencies. That year the legislature established an all-legislator Administrative Rules Review Committee. The Review Committee, which scrutinized as many as 600 state rules and regulations per month, was empowered to determine whether an agency had acted within its statutory authority in promulgating a rule. If it found that an agency had exceeded its authority in adopting a rule, it filed an objection with the agency. But if that agency refused to repeal or amend the rule to meet the committee's objection, the committee's only remedy was to recommend to the next session of the General Assembly legislation to correct the problem. The committee at times was frustrated by agencies' unwillingness to amend their rules to answer its objections. For that reason, the 1981 General Assembly authorized the committee to delay the effective date of rules it found objectionable. The General Assembly reversed that action in 1982, however, in response to an Attorney General's opinion. That opinion, based on the *Bone* case and its aftermath, asserted that legislative delay and suspension of agency rules unconstitutionally involved the legislature in administration of the laws, violating the requirement that legislative, executive, and judicial powers be kept separate.

Legislative awareness of the variety of subjects over which agencies have rule-making authority increased as a result of the Rules Review Committee's work. The review process brought attention to a number of controversial rules, some seemingly adopted without legislative authority, such as those that imposed education requirements for licensure to practice a particular occupation or profession that were in addition to the requirements already set forth in the statute that regulated that occupation or profession. Other rules were clearly authorized by statute but were criticized because they threatened use of the provision in the enabling statutes that violation of any agency rule or regulation (as well as violation of the law itself) could subject persons to criminal penalties; some legislators felt that this kind of punishment was excessive. Other rules, such as an unpopular one adopted by the Department of Natural Resources and Community Development that prohibited possession and consumption of beer and unfortified wine in state parks, conflicted with other statutes—in this case,

the provision in the alcoholic beverage control law that generally allowed possession and consumption of beer and unfortified wine almost anywhere. Some rules, such as some controversial rules of the Social Services Commission, were mandated by federal or state law but dealt with unpopular subjects like social welfare programs.

This growing dissatisfaction with a variety of rules adopted by diverse agencies, coupled with the prohibition against legislators' serving on boards and commissions that have rule-making functions and the inability of the Legislative Review Committee to delay administrative rules it found to be unauthorized, helped to prompt action by the 1983 General Assembly that will assure a complete reconsideration of the APA during the next two years and may make radical changes in executive agency procedure in this state. A detailed consideration of the 1983 legislation on rule-making follows.

—As of July 1, 1985, Ch. 883 of the 1983 session laws repeals all rules adopted under the rule-making article (Art. 2) of the APA (G.S. Chapter 150A) that are in effect on January 1, 1985, unless those rules have meanwhile been "approved by the 1985 . . . General Assembly."[12] The Administrative Code, which is a compilation of all state agency rules, currently consumes some 18,000 pages; thus the significance of such a repeal is obvious. In the absence of rules that help to define and flesh out the law, agencies would have to operate solely under the terms of the legislation they are charged with enforcing. The complex nature of many subjects of law-making and the impossibility of anticipating and addressing every question that could arise in administering these laws can make enforcement and application of these laws extremely difficult; thus legislators may have to draft many enabling statutes more precisely. In the alternative, or perhaps in addition, the General Assembly may approve agency rules that it considers appropriate, as Ch. 883 provides. (Agencies that are not affected by Ch. 883 include local governments; the Department of Correction; the Utilities, Employment Security, and Industrial commissions; the Division of Motor Vehicles; and The University of North Carolina.)

One may ask why a blanket repeal of administrative rules is not an unconstitutional intrusion of the legislature into the executive branch's administration of the laws. The answer is that administrative agencies have only those powers delegated to them by statute. Thus the General Assembly is free to withdraw authority it has delegated to any administrative agency; in this case, it has made a potentially total withdrawal of rule-making authority.

—Sec. 52 of Ch. 923 of the 1983 session laws, which was approved after Ch. 883, repeals all of the APA, effective July 1, 1985, except for the rule-making article. Repealed in 1985 are the APA sections that specify the act's coverage; the meaning of "agency," "rule," and other terms critical to the law's operation; the minimum due process requirements for the agencies' conduct of cases that affect individuals; judicial review of agency actions; and the filing and publishing of rules adopted by agencies.[13]

—A temporary, all-legislator Administrative Procedure Act Study Commission was created by Res. 51 of the 1983 session laws and charged with two tasks. First, it is to evaluate the APA in general. Subjects to be studied include public participation in rule-making, the kinds of rule-making authority that are delegated to agencies by the legislature, and guidelines as to when administrative rules may subject violators to civil or criminal penalties. This study is to be completed by May 1, 1984, in time to be considered in the June 1984 legislative session. Second, in 1984 and 1985 the new commission must assist all agencies now subject to the rule-making and filing requirements of the APA in reviewing their rules and recommending to the General Assembly which ones should continue to be effective after July 1, 1985. Each agency must submit recommendations concerning its rules to the commission by October 1, 1984, and the commission must report to the Governor and the General Assembly by the time the legislature convenes early in 1985.

The study commission is advisory only. Decisions as to which rules are to be retained and which repealed are to be made by the General Assembly. (The constitutionality of that procedure was discussed above.)

—Effective August 1, 1983, Ch. 927 of the 1983 Session Laws abolished the legislature's Administrative Rules Review Committee, which had been in operation since 1977, and replaced it with a Governor's Administrative Rules Review Commission, which became effective on November 1, 1983. The new commission has ten members, four appointed by the Governor and six appointed by the General Assembly (three recommended by the Senate President and three by the House Speaker). Although this commission is not on the list (contained in G.S. 120-123) of boards and commissions on which legislators may not serve, it does appear to have executive functions, and presumably the *Bone* decision would bar legislators from serving on it. The legislature has apparently taken this view; none of its initial appointments to the commission are legislators. (Four are former members of the General Assembly).

There are several major differences between the Governor's Rules Review Commission and its predecessor.

12. The 1982 legislation that repealed as of July 1, 1983, certain rule-making powers of the Social Services Commission was itself repealed, thereby placing those rules on the same basis as rules adopted by all other administrative agencies affected by Ch. 883.

13. At present the APA requires that each county receive a free copy of the Administrative Code as published by the Attorney General; this provision will also be repealed in 1985.

First, the legislative review committee had to limit its inquiry to whether the rules it reviewed were beyond the adopting agency's statutory authority; the new commission is to review rules not only for compliance with statutory authority but also for clarity, lack of ambiguity, and necessity. Moreover, the new commission, if it finds that an agency rule does not meet all of these criteria, must delay the rule's effect. If the agency does not amend or repeal the rule to meet the commission's objections, the commission must "veto" the rule and thus keep it from taking effect. This is essentially the same arrangement that was considered of doubtful constitutional validity following the *Bone* decision. The difference this time is that the agency that vetoes executive agency actions is statutorily located in the executive branch, rather than being an all-legislator body in the legislative branch of government. However, it should be noted that legislative appointees—though they are not legislators—constitute the majority of the commission's membership, and this factor may raise some question as to whether that body is constitutionally composed. Any agency rule that is to become effective on or after January 1, 1984, is to be filed with the Review Commission. (Since rules normally become effective the first day of the second calendar month after they are filed, rules filed on November 1, 1983, will be effective on January 1, 1984.)

What lies ahead?

The General Assembly has now addressed most of the immediate concerns raised by the *Bone* decision. Legislation commenced in 1982 and completed in 1983 bars legislators from serving on most boards and commissions that have executive authority. The powers and duties of the Advisory Budget Commission have been amended to preserve its role in advising the Governor on budget preparation and in being consulted about—but not approving—many decisions involving administration of the budget once it has been enacted by the General Assembly. Thus legislators can continue to serve on the ABC without casting the Commission's decisions into legal doubt. The only apparently significant and unresolved question concerning the ABC is the Commission's role in preparing and recommending a budget for the Departments of the State Auditor and State Treasurer and for the Administrative Office of the Courts.

Now that immediate questions concerning service of legislators on individual boards and commissions have been resolved, the legislature is turning its attention to more far-reaching aspects of the *Bone* decision. By repealing all but the rule-making provisions of the APA and all agency rules that are not approved by the 1985 General Assembly, the legislature has opened the door to a comprehensive reappraisal of executive agency functions. (Theoretically, the General Assembly could strip all executive agencies created by statute of some or all of their particular powers and duties by repealing or amending each agency's enabling legislation. Such drastic action would be unlikely [except as to selected agencies]; however, the General Assembly has expressed a strong interest in becoming more involved in agency rule-making and other activities.) As noted above, for the first time agency rules will have to be approved by the General Assembly in order for them to remain effective after July 1, 1985. More immediately, henceforth (after November 1983) all agency rules will be reviewed on more stringent grounds than they have been, and rules that do not comply with the expanded criteria will be vetoed by the new Governor's Rules Review Commission, six members of which will be chosen by the General Assembly.

In addition to increasing its authority to monitor agency action governed by the APA, the 1983 General Assembly exercised its prerogative to become more directly involved in the executive branch through its constitutional power to adopt a comprehensive state budget. One example is reinstatement of the former procedure of directly setting in the appropriations act salaries of an enlarged list of executive branch personnel. It would not be surprising if the legislature continued to go into further detail in future budgets, thereby leaving less administrative discretion to the Governor.

Conclusion

The legislative response to the *Bone* decision has shifted from an analysis of individual state agencies to a broader look at the status and power of over 250 boards and commissions in the executive branch of state government. Individual legislative review of existing agency rules, if done thoroughly, will require enormous time and effort. Such a review is required by July 1, 1985. Will the General Assembly continue to take such a detailed, comprehensive interest in administrative agency activities after that experience? It may be that the 1983 General Assembly's heightened interest in how agencies exercise their power is a short-term reaction to the *Bone* case, and that the task of reviewing individual agency rules will prove so laborious that the legislators will seek other long-range means of restraining agencies that do not act in what legislators consider the public interest. Selective rewriting or repeal of statutes delegating authority to particular agencies would be one way to achieve this goal. Whether the 1983 legislation represents a passing reaction to *Bone's* strict interpretation of the separation-of-powers doctrine or whether it is part of an established trend toward more pervasive legislative involvement in executive branch affairs—within or possibly up to the limits established by the courts—remains to be seen. In either case, legislative decisions on this issue could have a profound effect on the future operations of state government. ●

The Charlotte-Mecklenburg Teacher Career Development Program

Phillip C. Schlechty and Anne W. Joslin

In recent months much attention has been focused on the quality of American public education. Opinions on that issue vary widely, but there is growing consensus on one point—that the present educational system does not provide the incentives to attract the most capable young people to the teaching profession or to keep the best teachers in the system, to improve the performance of less capable teachers, or to make the most effective use of the best teachers' talents in improving the system as a whole. It is becoming apparent that what is needed is a comprehensive approach designed to produce high-quality professional staffing. For the past two years the Charlotte-Mecklenburg School System has been developing such an approach. This past spring it obtained from the General Assembly special legislation that allowed variations from the statewide teacher-tenure law in the Charlotte-Mecklenburg schools only (see the box on the next page). The Charlotte-Mecklenburg System is now preparing to put a new tenure plan into effect in the fall of 1984. This article will describe the details of the new plan so far as they are available at this date.

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The hallmark of the Charlotte-Mecklenburg plan is the interconnection among all the components of the professional structure. To understand one component, it is necessary to understand all of them. For example, the salary that is possible within the system is directly associated with the career level a teacher has attained, and career level in turn is associated with the training and evaluation that are also part of the plan.

Career structure

The Charlotte-Mecklenburg Schools' plan will have a teachers' career ladder of six levels: provisional, career nominee, career candidate, career level I, career level II, and career level III. The plan will clearly distinguish among the various levels and the rewards, status, and responsibilities ascribed to each. Promotion to the next level will be based on the teacher's performance *and* willingness to assume greater responsibilities. As a teacher moves to each higher level, his or her responsibilities and obligations will increase. In brief, it is expected that as teachers move to higher-level positions, they will maintain high-quality instruction in their own classrooms and also contribute *directly* to the overall quality of education in their school building and in the entire system. For example, career level I teachers will be expected to help new teachers, and career level II teachers might be expected to lead in developing or testing new curriculum materials.

It is expected that teachers will be awarded tenure at the end of their fourth, fifth, or sixth year in the new system, when they achieve career level I. Teachers who have not attained career status by the end of the sixth year will not have their contracts renewed. However, teachers may choose not to move beyond career level I even if the administration is willing to advance them. In effect, career level I is the system's primary professional position.

The types of duties that might be expected at each level should clarify the kind of career staging, or career steps, that the new Charlotte-Mecklenburg Schools plan is expected to produce. A provisional teacher's duties might include classroom instruction and participation in train ing programs designed especially for novice teachers. A career nominee might be expected to do these things and also to participate on task committees and study committees within his or her school. A career candidate might be expected to do all of the above and also to help train new teachers. In addition to fulfilling the foregoing duties, teachers at career levels I, II, and III will be expected to

Tenure in North Carolina Public Schools

In 1971 the North Carolina General Assembly enacted the Teacher Tenure Act. In the decade that followed, many attempts were made to change or repeal that law. Except for streamlining the procedures, primarily in 1973 and 1983, efforts to obtain major legislative changes have not succeeded.

The 1971 act provides that after a school board employs a teacher (defined to include principals, supervisors, counselors, and other professional staff) and that person serves three consecutive years as a probationary teacher and is re-employed for a fourth year, he or she acquires "career status" (tenure) and can be removed only for specified, proved causes. The statute [G.S. 115C-325(e)(1)] lists fourteen causes, including inadequate performance, neglect of duty, physical or mental incapacity, and loss of a teaching position because of decreased enrollment or funding. A very elaborate and detailed discharge procedure, which includes hearings by two different bodies, is required before a teacher can be removed for cause. The charges against the teacher can be brought only by the teacher's superintendent. The first of the two hearings is a review by a five-member panel; usually at least two panel members are teachers, and all of them must neither reside nor teach in the county of the school district. The panel, which is appointed by the State Superintendent, must produce a written report on whether the district superintendent's charges were found to be true and substantiated. The second hearing is before the local board of education.

This statute has provided great job security to the teachers, principals, and professional staff of the North Carolina public schools. Unless there is an easily proved basis for the discharge—for example, a teaching position has been eliminated by the state or the teacher has been convicted of a felony— schools have had much difficulty in removing a teacher simply because the principal and superintendent find him to be incompetent. "Neglect of duty" or "inadequate performance" is hard to prove unless the neglect or incompetence is extreme. Performance that is merely mediocre does not constitute inadequate performance.

The dismissal procedure also has proved to be very expensive. The result has been that school administrators seldom seek discharge for inadequate performance or neglect of duty unless the performance is outrageously poor.

In the 1983 session of the General Assembly, the Charlotte/Mecklenburg schools obtained an amendment to the Tenure Act that rewrote one subsection, G.S. 115C-325(c)(1). The amendment (Ch. 394 of the 1983 Session Laws) allows the board of education of a school unit with more than 70,000 students (Charlotte-Mecklenburg is the only such unit) to extend the teacher's probationary period from three to six years, although the board may grant tenure at the end of the third, fourth, or fifth year. At the end of six years, however, the teacher must be either given tenure or not re-employed. This authority to extend the probationary period was resisted by the teachers' union, the North Carolina Association of Educators, which succeeded in limiting the life of the amendment to two years; unless the amendment is re-enacted by the 1985 legislature, it will automatically be repealed on July 1, 1985.

It is important to note that the six-year probationary period provided in this amendment is still shorter than the seven-year period that is customary in the fifteen institutions of The University of North Carolina (the School of the Arts has no tenure policy). The fifty-eight institutions of the Community College system also have no tenure system; their faculty may not be given contracts that extend longer than one year.

—**Robert E. Phay**

assume leadership in such areas as program evaluation, staff development, the diagnosis and remediation of instructional problems, the development of curriculum and materials, and the design and implementation of action-oriented classroom research.

Training

As with other components of the Charlotte-Mecklenburg School plan, specific details as to both the form and content of the training are not yet available. The training will be work-related and for the most part conducted on the job. Form and content will be designed to produce the competencies specified for each career level. *Training will not simply result in the accumulation of more credit, more certificates, and more degrees.*

The training provided will support both short-term improvement and long-term excellence. It will be determined not only by the individual teachers' needs but also by the values and goals of the entire school system. For example, one current goal for the system is to have teachers in primary grades work more directly with students in helping them learn to carry out each step in assigned tasks. This goal will certainly shape the training of provisional teachers.

Evaluation

Two broad statements can be made about evaluation in the Charlotte-Mecklenburg plan. First, all decisions concerning advancement on either the salary scale or the career ladder will be based on multiple evaluations conducted by numerous people using various criteria over a sustained period of time. Therefore teachers will be evaluated not only on their classroom performance but also on how well they fulfill other expectations (e.g., effective participation in staff development, work on school- and system-level committees, work on curriculum materials). Teachers will be evaluated by their principals, by their trainers, by curriculum specialists, by other teachers, and—when appropriate—by panels of other experts.

Second, teacher-evaluators will be evaluated in their role as evaluators. That is, if a teacher or administrator is responsible for evaluating any aspect of a teacher's performance, the merit of his or her appraisal will be part of the evidence used by those who review the evaluator's own work.

Rewards and incentives

The reward and incentive system is intended to encourage teachers to develop and maintain long-term commitments to support exceptional performance in their own classrooms and in their colleagues' classrooms. Given this goal, those who have developed the Charlotte-Mecklenburg plan decided that the system should emphasize rewards rather than punishment. The salary schedule illustrates this principle (see Figure 1). The effect of the shifts in the salary structure is that a highly motivated, talented teacher who came into the Charlotte-Mecklenburg School System immediately after graduation from college and stayed for 30 years could increase his or her career earnings by nearly 50 per cent—from approximately $600,000 to $900,000 over a 30-year period.

Given the proposed salary structure, the reader might well ask whether the plan is economically feasible. There is a vast difference between a teacher's current maximum possible annual salary of approximately $23,000 and the maximum possible annual salary called for under the new plan— approximately $39,000, and the plan could indeed become expensive. But there are a number of reasons to believe that these long-run costs will not be as great as one might at first estimate.

For example, opportunities now available within the system for teachers to increase their incomes (e.g., to teach workshops, to teach summer school, and so on) will be redesigned to permit teachers in career levels I, II, and III to augment their salaries.

In the long run, this program's economic viability is largely based on the fact that turnover among teachers has always been high. For example, under present circumstances, about 15 per cent of the new teachers leave teaching during or at the end of their first year. By the end of the fifth year, approximately 40 per cent have left teaching, and by the end of the tenth year, more than 50 per cent have left. Research conducted locally suggests that no more than 20 per cent of those employed today will remain in teaching for 30 years. *The goal will be to assure that the 20 per cent who remain are the ones who consistently demonstrate excellence in the classroom.*

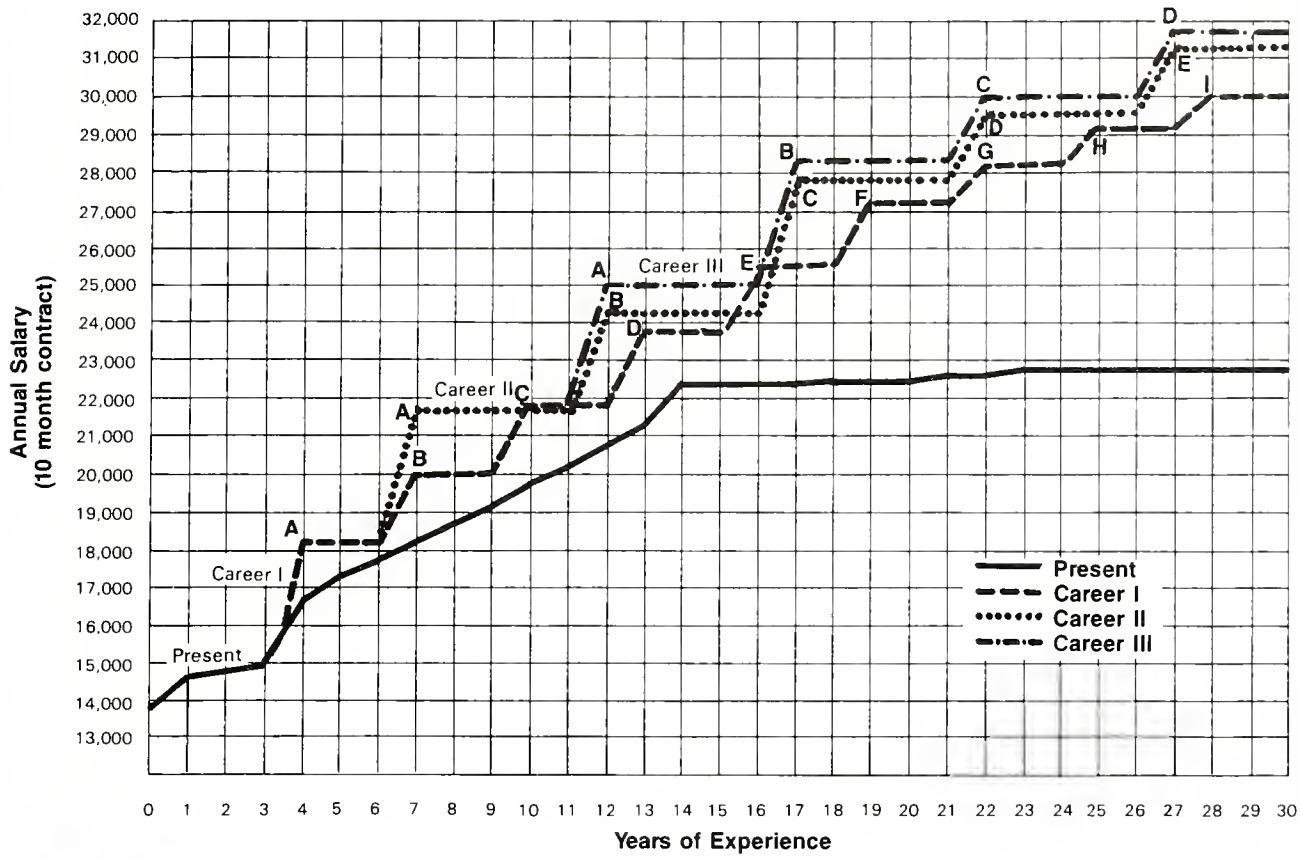
Given the qualities that continued excellence requires, and since such a large number of teachers just out of college must be recruited, officials in the Charlotte-Mecklenburg Schools believe that more rigorous standards for admitting beginning teachers to the career levels will preclude the need to establish quotas for admission to the higher-salaried ranks. Indeed, one motivating force behind the development of this new career structure is the growing evidence that unless fundamental changes are made in the way teachers are trained, evaluated, and rewarded, quality as well as quantity will be lost.

What happens to teachers already employed?

Under the proposed plan, teachers who enter the school system after January 1, 1984, will be required to participate in the new career development program. But for teachers employed before that time, the new program is optional: they may choose to take advantage of the new system or to remain in the present system. Furthermore,

Figure 1

Present and Proposed Salary Scale



teachers who choose to go into the new system will be assured that even if they fail to rise on the career ladder, they will lose nothing they now have (e.g., salary, tenure, or job assignment) so long as their performance meets *current* expectations. The system is intended to provide additional options and not to replace the present options available to teachers or to threaten these teachers with new demands. It is important to understand, however, that present teachers who go into the new system will be required to demonstrate the same skills that teachers new to the system will be asked to show. They will also participate in a new and more rigorous system of evaluation and training.

Involvement by the school system, the school board, and community

The Charlotte-Mecklenburg Schools Project results from a report to the superintendent of the Charlotte-Mecklenburg Schools on June 3, 1982, by the Merit Pay Study Committee. The superintendent had appointed this committee— made up of representatives from institutions of higher education, the business community, the board of education, the PTA, the presidents of three local teacher organizations (the North Carolina Association of Educators, the American Federation of Teachers, and the Classroom Teachers Association—NCAE, AFT, and CTA), other teachers, and school administrators—to study the possibility of a merit pay plan in the Charlotte-Mecklenburg School System. Its report presented 20 specific recommendations based on these key ideas:

(1) A new and enriched career structure should be developed. This structure should include a pattern designed so as to provide teachers with opportunities to assume responsibilities for teacher education, educational research, program development, and program evaluation.

(2) A new program for training beginning teachers should be developed that is consistent with the idea of a staged career and a staged entry into the profession.

(3) After the career structure is developed, a system of training, evaluation, and economic incentives should be developed that will foster the career structure.
(4) A long-term strategy should be developed to assure that the new career structure will be introduced in a way that will gain maximum support from the community and from teachers.

Between June 1982 and January 1983, the superintendent, members of his staff, and the board of education studied and reviewed the the Merit Pay Study Committee's recommendations. On the basis of this review, the superintendent and his staff proposed a salary structure and a career structure that they felt would be professionally, economically, and politically feasible and defensible.

On January 25, 1983, the superintendent presented the proposed salary structure, along with a series of related recommendations, to the Charlotte-Mecklenburg Board of Education. He also requested permission to ask the 1983 General Assembly to amend the state tenure law (see the box on the next page) so as to permit the new tenure provision that had been recommended for the Charlotte-Mecklenburg School System. The board endorsed his recommendations unanimously. (The General Assembly enacted the enabling legislation on May 20, 1983). In addition, all board members gave clear support to the direction in which the project was headed and indicated their willingness to do whatever was necessary in developing the plan. The beginning date for the plan was set at fall 1984.

This project has gained support not only from the local board of education but also from local business leaders, from Governor Hunt, and from the State Superintendent for Public Instruction. In addition, it has received widespread publicity in local and national media. Local newspapers have printed favorable editorials on the project, and other newspapers across the state and the nation have commented favorably on it.

Planning and communication

Those who have done the preliminary work on the project believe that a crucial element in the success of the new plan is the active involvement of those most directly affected—the teachers and administrators within the respective schools.

The first step in assuring this involvement was to schedule 35 specific planning tasks and to devise strategies for accomplishing them between February 1, 1983, and July 1988.

After this planning schedule was established, the superintendent authorized the creation of a systemwide committee structure intended to support the planning activity, to provide visible and meaningful input from teachers and administrators at the individual schools, and to assure more effective communications between those teachers and administrators and the coordinators of the plan. This committee structure has three critical elements: (1) a relatively large (21 members) systemwide steering committee, (2) 102 relatively small (6-11 members) liaison committees within the respective school buildings, and (3) a temporary staff intended to link the activity initiated by the central steering committee to the work of the school-based liaison committees.

The steering committee includes those people whose offices and positions will necessarily be affected by or concerned with whatever plan is developed: the deputy superintendent, the assistant superintendent for personnel services, the assistant superintendent for curriculum and staff development, the director of staff development, the dean of the School of Education at UNC-Charlotte, and the presidents of the three local teachers organizations (NCAE, AFT, and CTA). Through procedures designed to assure that those persons selected would be perceived by their peers as being representative, six additional teachers, four principals, and two area superintendents were also appointed to the committee.

The steering committee's primary functions are (1) to provide overall direction to the planning and developing of the Charlotte-Mecklenburg Teacher Career Development Project, (2) to serve as a communications conduit for the various constituencies that will be affected by the project regarding the project's direction and progress, (3) to solicit reaction and support from the people and offices whose help will be essential to the plan's success, and (4) to advise the superintendent on the direction the project should take and alternative strategies for dealing with problems and issues that will inevitably come up.

Each school-based liaison committee is composed of teachers elected by the teachers, the principal, the coordinating teacher (the staff development specialist in that school), and (at the junior high and high school levels) an assistant principal. These committees are chaired by either a teacher or the coordinating teacher. Their primary functions are (1) to provide the steering committee with reactions, suggestions, and perspectives regarding the desirability and feasibility of plans and procedures that emerge as the project develops (i.e., to serve as review panels and sounding boards); (2) to serve as an identifiable cadré of teachers whose opinions are valued and respected by their peers and who could serve effectively on whatever task groups might be needed along the way; (3) to make suggestions regarding problems identified by the steering committee or within the planning process; and (4) to provide individual faculty members with easy access to those who have a central role in the planning process through people who have an established means of communicating "grass-roots" concerns.

To provide effective linkages between the school-based liaison committees and the steering committee, a temporary staff structure has been created. This structure is composed of a project coordinator and four teacher associates, who will be the personal contacts between the liaison commit-

tees and those responsible for planning at the central level. For example, it is expected that the teacher associates will communicate personally with the chairperson of each liaison committee at least every other week in order to specify tasks, clarify tasks and expectations, and solicit feedback. The style of this planning effort will be "management by walking around" as opposed to "management by memo."

The Charlotte-Mecklenburg Schools Project is a long-term effort to deal with a problem that is deeply embedded in the relationships between and among a variety of organizations and within the structure of the teaching profession. Therefore, immediate results are not expected. Rather the goal is to redesign the way schools are managed, the way the profession is structured, and the way teacher education is related to the schools. ●

Solid Waste Collection *(continued from page 23)*

Alternative collection systems

Despite a county's best efforts to plan and manage the various elements of a green box collection system, problems may persist. If problems do go on, or if another system appears to be superior, the county should examine and evaluate alternative collection systems. Three practical alternatives to conventional green box systems are:

Centralized 40-cubic-yard roll-off collection systems. Such a system, which uses large collection containers and a hoist and tilt-frame collection vehicle, has been used successfully for several years in Wilson County, North Carolina.

Convenience center collection systems. The convenience center concept was pioneered by the Tennessee Valley Authority's Regional Waste Management Program and is now being used successfully in such jurisdictions as Knox County, Tennessee; Hopkins County, Kentucky; and Washington County, Virginia. This system resembles the 40-c.y. roll-off arrangement, but it uses manned sites and stationary on-site compactors. A convenience center system has recently been adopted in Madison County, North Carolina.

Countywide house-to-house collection systems. This type of system, in which the county itself furnishes house-to-house collection service with small compactor trucks, is not now used in North Carolina but should be considered as a reasonable alternative to conventional green box systems. The house-to-house concept is described in detail in a 1980 Tennessee Valley Authority report entitled *Design Concept: Countywide House-to-House Solid Waste Collection System.*[5]

A county that wants more detailed information on these alternative systems should write to me or consult the various sources listed. A local government should conduct an in-depth analysis of the costs and benefits applicable in its specific situation before changing systems.

5. *Op. cit. supra* note 1.

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