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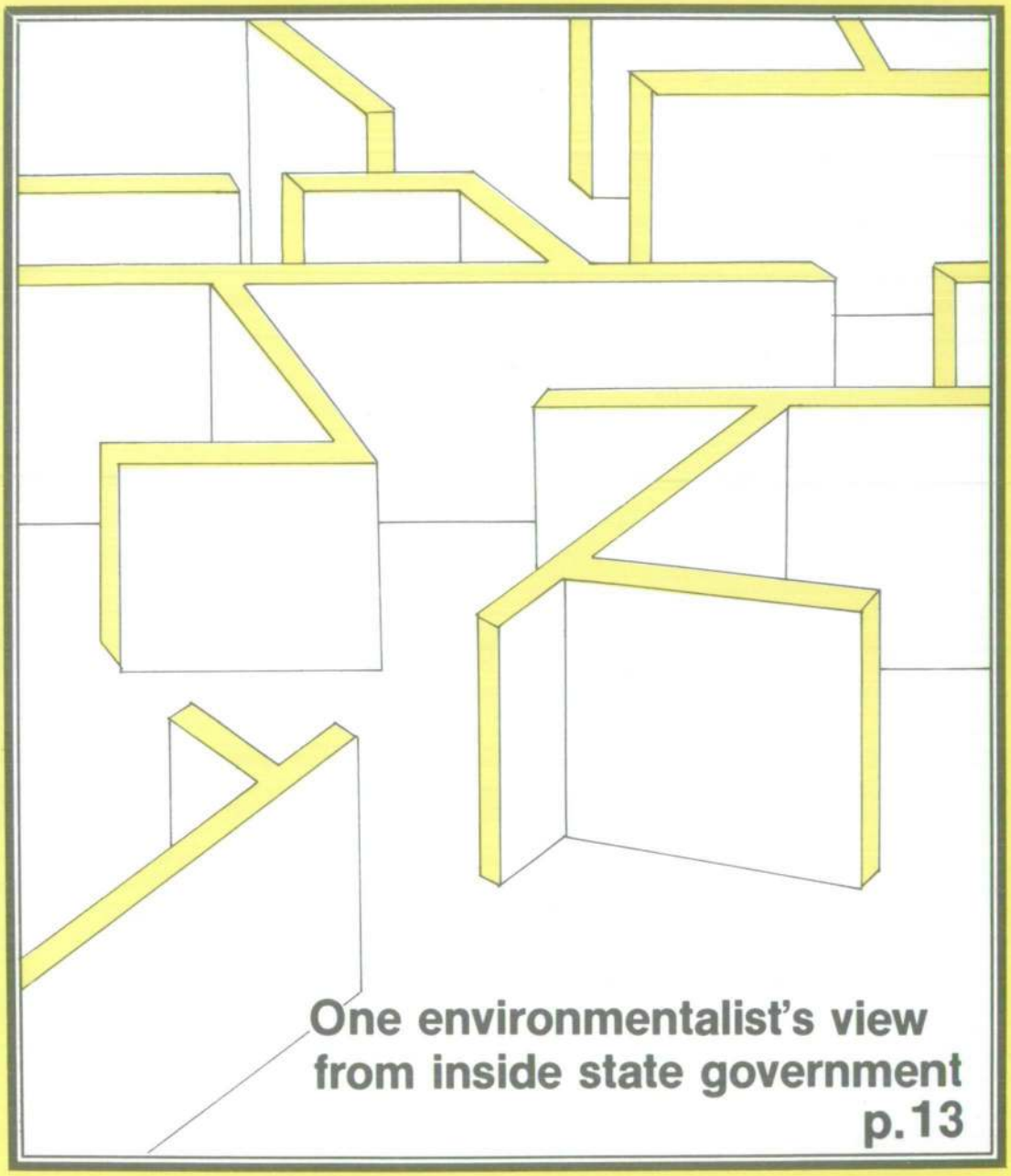

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CWIP: shifting the investment risk to utilities' consumers

by John L. Neufeld

One of the last acts of the state legislature two years ago was the passage of Senate Bill 276, the Utilities Commission Reform Bill. One of the changes mandated by that bill will allow utilities to include the costs of "Construction Work in Progress" (CWIP) in their rate bases. Thus, ratepayers will be paying for a portion of the costs of utility plants while they are being built and before they receive a product from the plants. Whether they like it or not, the ratepayers will become investors in the utility companies. Prior to passage, there was relatively little discussion among legislators or among the general public about the impact which CWIP will have on the state's utilities and ratepayers. By delaying the effective date of the new law until July of this year, the legislature gave itself the chance to review and modify the decision made two years ago. The discussion which was absent two years ago ought to take place now.

Although there was little discussion at the time, the change to CWIP is a move favored by the state's utilities and by Hugh Wells, the director of the Public Staff of the Utilities Commission. Despite this appearance of broad support, CWIP is a proposal which deserves controversy. CWIP might be useful in instances where public utilities face major financing crises as a result, in part, of inept management and incompetent regulation. This situation does not exist now in North Carolina and there is no evidence that a financing crisis lies in the foreseeable future. At present, the adoption of CWIP would allow utilities to collect money from ratepayers which would not be used to offset current costs of providing service. It relieves stock and bondholders of part of the risk they face by shifting that risk to the customers of the utility. In addition, CWIP distorts the incentives faced by private utilities and might lend to wasteful over-construction. A more active Utilities Commission will be necessary to counteract these influences.

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Unfortunately, as is the case in many utilities matters, it is very unlikely that more than a handful of North Carolinians will have a reasonably complete understanding of the issues involved. This is a pity because the decision which is ultimately made will have an impact on virtually all North Carolinians.

Construction Costs and Interest

The basic change CWIP makes in the way utilities* operate is that it changes the timing by which a major portion of the cost of building new power plants is reflected in utility rates. The present system is designed to prevent the construction of new power plants from having any impact on rates until the power plants are completed and put into service. Under CWIP, a major portion of the cost of constructing new power plants can be recovered immediately without waiting for the plants to be completed and put into service.

In order to understand how CWIP works, it is necessary to have a rudimentary understanding of utility cost accounting. A utility is entitled to receive from its customers an allowable gross revenue which consists of the *cost of service* plus a *fair return* on its *rate base*. The rate base is equal to the value of all of the utility's invested capital (power plants, office buildings, power lines, etc.) Before an item can be added to the rate base, its inclusion must be permitted by the Utilities Commission. The *fair return* is then equal to the value of the rate base multiplied by a *fair rate of return* which is determined by the Commission. In a sense, these terms are misleading. The fair return which a utility receives in its operating income is conceptually as much a part of the cost of doing business as is the cost of service component of operating income. The primary distinction is that the component of the utility's cost which is offset by the fair return is much more difficult to value objectively than is the component represented by the cost of service.

The electric power industry is very capital intensive; a large proportion of a power company's

*Although CWIP would apply to all regulated utilities, this discussion will focus on the electric power industry.

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costs consists of generating plants, transformers, distribution networks, etc. In order for a utility to construct these facilities, it must raise sufficient money to pay for their construction. If it raises the money by issuing bonds, it will have to pay interest on the bonds. If it raises the money by issuing stock, then it must make an implied promise to pay those stockholders dividends. In the absence of interest and dividend payments, a utility would be unable to raise the money it needs to construct essential capital equipment. Since the interest and dividends are required for the utility to function, they should properly be regarded as a cost of doing business. The chief problem in objectively valuing this cost is that it is hard to determine exactly what rate of dividends the utility must pay its stockholders. Nevertheless, this is part of what the Utilities Commission must do in its hearing process. The fair rate of return is set by the Commission to best approximate the overall return the company must pay its stock and bondholders. Since the stock and bondholders provided the funds for these items which are included in the rate base, the fair return should allow the utility to compensate them for just that provision of funds.

The cost of constructing a new power plant will affect utility rates in two ways. When the power plant is added to the rate base, the power company's fair return will increase, thus increasing its allowable operating income. Once the power plant is brought into service, the company can depreciate it over a certain time period. Each year the depreciation has the effect of reducing the plant's value in the rate base, but the amount of the depreciation taken each year is included in the cost of service and therefore increases the company's allowable gross revenue.

The time period required to construct a power plant is quite long, particularly if the power plant is designed to produce electricity from nuclear energy. Such a plant may require as much as 10 to 12 years for construction. During the entire construction period, the utility will have to continually raise capital in order to pay for the ongoing construction. The obligation to provide a return to the suppliers of the funds exists during the period of construction as much as it does once the plant is in service. If the funds have been raised through the sale of bonds, the utility will have a legal obligation to pay the bondholders interest during the period of construction. Although stockholders need not be paid during the time period of construction, a return for the use of funds during construction will eventually have to be made to them. As was discussed above, an interest-like return on the value of a utility's capital should be viewed as a normal cost of doing business. In the same way, the interest cost for funds used to finance the construction of a power plant, incurred before the plant is completed, should be viewed as a normal part of the cost of constructing a power plant. This cost must be recovered by the utility. CWIP permits the utility to recover income to offset this cost as it is being incurred. In the absence of CWIP, the income to offset this cost is not received by the utility until after the plant comes into service. This delay is achieved through an accounting device known as Allowance for Funds Used During Construction (AFUDC).

AFUDC

Under a system employing AFUDC, the Utilities Commission determines a rate of interest designed to reflect the cost to the utility of borrowing money to finance a construction project. This rate is conceptually similar to the rate of return the utility is allowed to receive on its rate base, although the two rates are determined separately. The AFUDC rate is usually slightly lower than the allowable rate of return.

Once a utility spends money for construction, it will begin incurring an interest cost for this money. Under the accounting procedures used by regulated utilities, the utility calculates an Allowance for Funds Used During Construction by adding all of the costs incurred by the project and multiplying this by the AFUDC rate. If the Commission has set the correct AFUDC rate, the Allowance should exactly equal the utility's cost of retaining funds for the construction project for an additional year. The utility is then permitted to add this Allowance to the costs incurred in constructing the plant. Thus, when the plant is brought into service, its contribution to the rate base will include an Allowance for each year in which the plant was under construction as well as the direct amount spent on construction. As the plant is depreciated, both construction costs and AFUDC will be recovered from the utility's customers.

Because of the accounting practices employed in regulated utilities, AFUDC appears in the utility's income statement as income for the year in which it is claimed. This practice has been criticized by

Governor Among Opponents of CWIP

The Construction Work in Progress (CWIP) provision was not part of the utilities reform legislation Governor Hunt supported during the 1977 session of the General Assembly. In response to a query from the Center, the governor said through Press Secretary Gary Pearce that he opposed CWIP then and opposes it now and that he would support legislation to repeal the provision.

Hunt said he was responsible, through Hugh Wells, then counsel to the State Senate's Utilities Committee, for having the implementation date of CWIP delayed until July 1, 1979. Although the governor acknowledged that good arguments can be made on both sides of the issue, he said he saw no need for the change to the CWIP method of financing utility construction.

Wells, now director of the public staff of the Utilities Commission, favors CWIP. In an interview, Wells emphasized the fact that the Utilities Commission has the statutory authority to decide what construction expenditures the utilities may include in their rate bases. He expressed confidence that the commission can decide whether the utilities are building the right facilities and adhering to the proper timing in their construction programs. He said the public staff will look carefully at the utilities' construction budgets.

Wells describes CWIP as a compromise solution to a public policy problem---the utilities' difficulty with financing. "It's mathematics certain and sure," he said, "that consumers will pay less in the long run under CWIP." As for the argument that some of today's consumers will pay for power they never use, Wells said, "There's no logical response. It's a matter of fitting the remedy to the disease."

State Sen. I. Beverly Lake Jr., who opposed including the CWIP provision, said, as this publication was being prepared in April, that he did not know whether he would introduce legislation to repeal CWIP. Lake, who takes the position that today's ratepayers shouldn't be forced to pay for future ratepayers' electricity, describes CWIP as a "time bomb that is going to go off to the extreme detriment of the ratepayers."

Although Lake opposes heavy reliance on nuclear power plants because of what he views as their high costs and inefficiency, he does not base his position on CWIP on his opposition to nuclear power. But others do. Anti-nuclear groups in North Carolina and in many other states have mounted campaigns against CWIP because they believe that method of financing encourages power companies to build nuclear-powered plants, which are costly and take many years to build.

Opposition to CWIP, which was a highly publicized issue in last fall's gubernatorial election campaign in New Hampshire, was partially responsible for the recent decision by the Public Service Co. of New Hampshire to sell 60 percent of its interest in the Seabrook nuclear power plant. The newly elected governor of New Hampshire, Hugh Gallen, has pledged to seek legislation repealing the CWIP provision in that state.

—Henry Wefing

some, since AFUDC does not provide cash to the utility when it is claimed. It will, in fact, not provide cash until the plant is brought into service. The AFUDC does represent an increase in the value of an asset owned by the utility, the plant under construction. Consequently, it does represent income in the strict economic sense. It is as if the utility received the income in cash and immediately invested that income in the plant under construction.

Securities analysts who judge the attractiveness of a utility as a potential investment are liable to look very carefully at a company which has a substantial portion of its income in the form of AFUDC rather than cash receipts. Such a company may have to pay a higher rate to attract additional investment funds than would an otherwise identical utility which has only a small portion of its income in the form of AFUDC. From the standpoint of potential investors, this higher rate is appropriate. AFUDC represents income which *may* be realized in the future if the plant is indeed brought into service and if the utilities commission permits a rate increase at that time. If investors or securities analysts believe that the utility is overconstructing, they may question whether the plant will ever be brought into service, or at least whether its completion may be delayed. Such a possibility is particularly troublesome these days, when the rate of growth in demand for electricity has declined sharply from that of previous decades. Projections made today on what the demand for electricity

Compared to AFUDC, CWIP causes ratepayers to pay more while plants are under construction but less after the plants are in service.

will be in 20 years are far more likely to be in error than were similar projections made 20 years ago. Potential investors will require a higher return in compensation for this increased risk. It should be noted that this problem is particularly likely to be experienced by utilities whose plans call for the construction of nuclear-powered generating plants rather than fossil fuel-powered plants. Nuclear plants tend to be more expensive and tend to take much longer to complete. Consequently, they generate more AFUDC than similar sized fossil fuel plants. Utilities constructing nuclear plants thus pose a greater risk to investors than do otherwise identical utilities constructing fossil fuel plants.

The possibility that a plant's completion may be delayed or cancelled is not the only risk faced by potential investors. There is also the risk that utility rates may not rise fast enough to adequately recover the funds invested in the new plant. This possibility is particularly likely in periods of rapid inflation. The regulatory procedures used by North Carolina and other states are more likely to provide a company with insufficient revenues during periods of high inflation than during periods of low inflation. There are several reasons for this discrepancy. Periods of high inflation are often characterized by rising interest rates. A utilities commission which uses historical data to determine the utility's cost of funds may set a rate of return too low to meet the company's future needs. Rate cases in North Carolina are based on past test years. Essentially, the Commission grants rates which would have produced sufficient revenue had they been in effect during the test year. Even if the rates would have been sufficient for the test year, inflation may make them insufficient to meet a utility's needs in the future. This possibility also increases the risk faced by potential investors and may increase the return the utility must pay many investors in order to attract additional funds.

In extreme circumstances, the risk potential investors see in a utility whose income is largely AFUDC may make them reluctant to purchase the stocks or bonds of the utility, regardless of the return. Such a situation might result in a financial crisis for the utility and could result in construction delays. Although AFUDC could be a contributing factor in such a financial crisis, it is very unlikely that extreme mismanagement and unreasonable regulatory behavior would not also be present. In any event, the risk to investors which is represented by AFUDC is eliminated under CWIP.

CWIP

If a utility is allowed to use CWIP (Construction Work in Progress), it can add the costs incurred in constructing a power plant to its rate base before the plant is completed and in service. Once the construction costs are in the rate base, they permit an increase in the firm's allowable return. In essence, CWIP permits the utility to enjoy an immediate return on its invested capital. This return can be used by the utility to pay those investors who provided funds for the construction project. To investors, providing funds to a firm which uses CWIP is less risky than providing funds to an otherwise identical firm which does not use CWIP. This lessened risk is owing to the fact that under CWIP the utility receives an immediate return on its construction investment. No longer must the firm incur the risks of waiting until its plant is in service before receiving a return. Essentially, those risks are transferred to the utility's customers, who must pay a return to those funds even if they prove useless---that is, even if the plant they finance turns out to be unneeded.

CWIP has some advantages for ratepayers. If the utility adds its construction costs to its rate base under CWIP, there would usually be no AFUDC. Consequently, when the plant comes into service, its value in the rate base will consist only of construction costs without AFUDC. The elimination of the AFUDC component of construction costs will significantly reduce the total rate base value of the plant. This means that once the plant is in service, its impact on rates will be less if the utility used CWIP than if it used AFUDC. Before the plant is in service, however, there will be no impact on rates if AFUDC is used, while there will be an impact on rates if CWIP is used. Compared to AFUDC, CWIP causes ratepayers to pay more while plants are under construction but less after the plants are in service. A reasonable question to ask at this point is under which system, AFUDC or CWIP, is the total cost to ratepayers less? Unfortunately, several issues complicate a complete answer to this question.

CWIP vs. AFUDC

If one simply tallies the amount paid by ratepayers for a single project under CWIP and for the identical project under AFUDC, the total spent over the period of the plant's construction and over its useful life will be less under CWIP than under AFUDC. This difference results from the "compounding" of AFUDC, which is calculated on the basis of construction costs plus AFUDC already

Construction Costs Under CWIP and AFUDC

CWIP

Year	Construction Costs	Contribution to rate base value	Contribution to fair return	Depreciation	Recovered from ratepayers
1	$1,000,000	–	–	–	–
2	1,000,000	$1,000,000	$100,000	–	$100,000
3	1,000,000	2,000,000	200,000	–	200,000
4	1,000,000	3,000,000	300,000	–	300,000
5	1,000,000	4,000,000	400,000	–	400,000
6	in service	5,000,000	500,000	$500,000	1,000,000
7	in service	4,500,000	450,000	500,000	950,000
8	in service	4,000,000	400,000	500,000	900,000
9	in service	3,500,000	350,000	500,000	850,000
10	in service	3,000,000	300,000	500,000	800,000
11	in service	2,500,000	250,000	500,000	750,000
12	in service	2,000,000	200,000	500,000	700,000
13	in service	1,500,000	150,000	500,000	650,000
14	in service	1,000,000	100,000	500,000	600,000
15	in service	900,000	50,000	500,000	550,000

AFUDC

Year	Construction Costs	AFUDC	Total Costs	Contribution to rate base value	Contribution to fair return	Depreciation	Recovered from ratepayers
1	$1,000,000	–	$1,000,000	–	–	–	–
2	1,000,000	$100,000	2,100,000	–	–	–	–
3	1,000,000	210,000	3,310,000	–	–	–	–
4	1,000,000	331,000	4,641,000	–	–	–	–
5	1,000,000	464,100	6,105,100	–	–	–	–
6	in service	–	–	$6,105,100	$610,510	$610,510	$1,221,020
7	in service	–	–	5,494,590	549,459	610,510	1,159,969
8	in service	–	–	4,884,080	488,408	610,510	1,098,918
9	in service	–	–	4,273,570	427,357	610,510	1,037,867
10	in service	–	–	3,663,060	366,306	610,510	976,816
11	in service	–	–	3,052,550	305,255	610,510	915,765
12	in service	–	–	2,442,040	244,204	610,510	854,714
13	in service	–	–	1,831,530	183,153	610,510	793,663
14	in service	–	–	1,221,020	122,102	610,510	732,612
15	in service	–	–	610,510	61,051	610,510	671,561

*This hypothetical comparison is based on the following assumptions: that the plant takes five years to construct and that direct construction costs are $1 million each year; that the AFUDC rate is 10%; that the fair rate of return is 10%; that the plant has a useful life of 10 years, and that straight-line depreciation is used. The tables are not meant to reflect the actual accounting practices of utilities. It takes longer than five years, for example, to construct most power plants, and different amounts are spent on construction during each year of the building project.

credited the project. Under AFUDC, customers essentially pay "interest on interest" and it is this which is the primary source of the difference between the total paid under CWIP and under AFUDC. Such a comparison of CWIP and AFUDC would be misleading, however. Under CWIP, customers must begin paying for new plants sooner than they would under AFUDC. In the absence of CWIP, one could imagine customers taking the money they would have paid under CWIP and investing it in some interest-bearing asset (such as a savings account) until construction on the plant was complete. Once the plant is complete, the money in the savings account could be used to pay electric bills. Because of the interest received by the savings account, the money available to pay for electric bills would be greater than the sum of all of the deposits made into the account. The point is that money paid earlier, as under CWIP, is more valuable than money paid later, as under AFUDC, because one can always receive interest on money on which payment can be deferred.

In order to determine whether ratepayers pay more in total under CWIP than under AFUDC, one must know what interest rate ratepayers face and how it compares to the rate the power company faces. If the AFUDC rate and the utility's allowable rate of return-rate and the interest rate on ratepayers' investments are all equal, then the costs under CWIP and AFUDC are identical. If ratepayers receive a lower rate, the costs are lower under CWIP; conversely, if they receive a higher rate, the costs are lower under AFUDC. Unfortunately, it is not easy to determine the rate which ratepayers

It is conceivable that an unusually good commission might, in some ways, turn CWIP to the advantage of ratepayers.

face, since each individual may face different rates. If an individual is a net saver, and if his highest return comes from a passbook savings account, the rate he faces is liable to be low. On the other hand, some of a utility's customers may be debtors. For them, the relevant interest rate is the rate which they must pay. Conceptually, we can imagine such customers increasing their borrowings to finance higher utility bills under CWIP. If they must pay 30% interest on their loans, they may not be impressed by the fact that they save the 9% extra they would have had to pay under AFUDC. Comparison of the costs paid under CWIP and AFUDC are meaningless unless an interest adjustment is made to compensate for the different time periods in which each system requires payment to be made. Ignoring this point is equivalent to assuming ratepayers face a 0% interest rate, an absurd position.

Another complicating factor in the comparison of CWIP and AFUDC arises from the risk which is an integral aspect of utility plant construction. Any project which incurs costs now to provide benefits in the future faces some risk that those future benefits will not materialize. No accounting rule is going to change this basic economic fact. Generally the assumption of risk is a function undertaken by investors in a free market economy. CWIP insulates investors from part of that risk by forcing ratepayers to provide a return to those investors regardless of whether or not the plant's future benefits ever materialize. Under AFUDC, this risk is assumed by those investors who, through their actions, have shown themselves to be most willing to assume the risk. Under CWIP the risks are forced upon ratepayers who might not have been willing to accept them voluntarily. Thus, even if ratepayers face an interest rate identical to that faced by the power company, they are better off if their electric bills are figured with AFUDC rather than CWIP. The Utilities Commission has the responsibility to minimize the risk investors face by insuring that rates do not fall too low to provide a utility with sufficient revenue, regardless of whether or not CWIP is used.

The third factor complicating a comparison of the costs borne by ratepayers under CWIP and AFUDC arises from the fact that ratepayers represent a heterogeneous mobile group. Under CWIP many ratepayers will be paying for a power plant whose benefits they would not enjoy even if the plant were to be finished on time. Older ratepayers may not survive the construction period, and younger ones may move out of the utility's service area. In essence, the risk to a ratepayer who, under CWIP, must pay for benefits in the future, is greater than the same risk would be to an investor under AFUDC. Although CWIP causes ratepayers to assume some of the costs otherwise assumed by investors, it may distribute those benefits to others who have not paid the full cost of the service they enjoy because they moved into a utility's service area only after plant construction was complete. For this reason, if it were possible to allow each ratepayer to choose whether his rates alone would be calculated under CWIP or AFUDC, it seems highly unlikely that a ratepayer with a good understanding of the issues involved would ever choose CWIP. The risk that any individual ratepayer might not derive full benefit from his payments under CWIP would be too great. One might argue that CWIP should be regarded as a redistribution scheme in which those who have lived in an area for a long time subsidize newcomers and the young. It is hard to imagine a social goal which would be furthered by such redistribution.

CWIP and the Regulatory Process

CWIP will increase the burden borne by the Utilities Commission of ensuring an economical electric power system. It is conceivable that an unusually good Commission might, in some ways, turn CWIP to the advantage of ratepayers. This will require that the Commission become much more involved in the type of details concerning plant design and construction which have generally been the concern of utility management.

Under AFUDC, utilities face a powerful incentive to avoid construction of a plant which might not be needed. Once a plant is under construction, there is also an incentive to complete construction as rapidly as possible so that the company can begin earning a return on its investment. Although CWIP would not eliminate the risk to a utility of overconstruction, it would reduce this risk. It virtually eliminates the present incentive a utility faces to construct plants as rapidly as possible, and therefore to not begin construction prematurely. These are potentially important factors and have impact on virtually all activities associated with long-run utility planning, including load forecasts, choice of fuel for future plants, and all construction timing decisions. A vigilant Commission will be essential to ensure that long-range planning made by the state's utilities does not expose ratepayers to unnecessary risk. Traditionally, the Utilities Commission has been reluctant to overrule utility management in these types of decisions unless there has been overwhelming evidence against the utility. With CWIP, commissions are going to have to become involved with long-range forecasting, risk evaluation, the overseeing of construction plans, and the evaluation

of construction schedules.

It is not inconceivable that an unusually adept Commission might be better at long-range planning than the private utilities it regulates. CWIP is not a prerequisite, however, to commissions taking a more active stance, although it increases the necessity of such a posture. An argument could be advanced that a competent utility management, combined with a capable commission, could reduce the risk associated with long-range planning below that which has been evaluated by potential investors. Such a line of argument would maintain that investors, in such a situation, would receive a higher return than was really necessary for the risk they were assuming. By shifting this risk to ratepayers, the argument would continue, the savings to the ratepayers exceeds the cost of any potential risk.

It is my personal view that it is impossible to eliminate the risk associated with a decision which depends on a prediction of future human behavior. Power plant construction timing involves just such decisions, because it depends on forecasts of future demands for electricity. The time period of a power plant's construction exceeds the term of most utility commissioners, and the quality of commissions is subject to wide fluctuation. For these reasons the accountability associated with long-run decisions would best remain primarily with utility companies which, as much as possible, will have to bear the full consequences of their decisions.□

A Blow to Public Access

The U.S. Supreme Court ruled in April that the Federal Communications Commission (FCC) had no statutory authority for requiring a cable television system with 3,500 or more subscribers to provide access channels and production equipment for use by the public.

The ruling means that the 20 or so cable television systems in North Carolina that serve 3,500 or more subscribers will no longer have to maintain access channels and production equipment and make the channels and equipment available to the public.

The main impetus for public involvement in cable television production will now have to come from North Carolina's local governments, which grant franchises to cable television systems. There is nothing to prevent the municipalities and counties from writing access provisions into their franchise agreements.

The Center's report, *Cable Television in North Carolina*, pointed out that despite the FCC regulations that the Supreme Court struck down last month, there has been little public use of cable television in North Carolina. Cable television in this state, as in most other states, has been mainly a vehicle for improving television reception and providing viewers with a broader choice of entertainment programs. Pay cable packages of movies, sports and other entertainment and the programming of distant "super stations" like WTCG in Atlanta have been the major selling points for cable in this state. The use of cable television as a medium for community expression and the delivery of community services has been largely unexplored.

In light of the Supreme Court decision, there is more need than ever for a state commission to inform and stimulate the deliberations of North Carolina's local governments. For the future of public involvement in cable television now lies in the hands of the local governments.

If a state commission were established, there is far greater likelihood that the issues of public access to and community uses of cable television would be considered before municipalities and counties granted franchises.

A state commission would alert local governments to the ways cable television is used in other municipalities in North Carolina and in other states. It would provide examples of comprehensive franchise agreements from which local governments could extract elements suitable to their communities. It would provide information on such subjects as the production of local programs, the formation of non-profit corporations to stimulate local programming, and municipal ownership of cable systems.

In some communities, interested citizens, agencies, and groups might respond to such information with enthusiastic interest in exploring cable television as a medium for community expression and services. In other communities, local governments might find that their citizens are not interested in public access to cable television and that there is no demand for the services that cable television can deliver.

Regardless of the result, the public would be well served because the decisions made by North Carolina's local governments would be based on well-informed exploration of the issues involved in cable television.

- Henry Wefing

Hunting mosquitoes

The State May Be Looking in the Wrong Swamps

"You cannot imagine what it is like, getting out of your car and literally breathing mosquitoes. I've been places where you could wave your hand behind you and feel them hitting your hand like rain."

—*Bob Pittman*
State Division of Marine Resources
Morehead City

by Tom Dillon

Many residents of coastal North Carolina, like the state official quoted above, view the prevalence of mosquitoes as one of the serious obstacles to economic growth in the region. They heartily support North Carolina's mosquito control program, a relatively little-known state service. That program provides money to all regions of the state, but it operates predominantly in 38 eastern and coastal counties. Last year, according to the Department of Human Resources, more than 96 percent of all the state money spent fighting mosquitoes went to those 38 counties, which stretch from the coastline as far west as Robeson and Halifax. Those 38 counties were the ones pinpointed in a 1957 study as being particularly vulnerable to mosquito-borne disease outbreaks. In them, county health departments pay particular attention to the job of mosquito control. The program is popular with both citizens and with many legislators who live in the area. "Anybody who opposes this program hasn't dealt with the business end of a mosquito," says State Sen. Harold W. Hardison of Lenoir County.

But the mosquito control program, following two straight years of budget overruns and the criticism of a number of environmental scientists, has come under increasing scrutiny. Large-scale drainage of swamp land may be disturbing the salt water marshes used as shellfish breeding grounds, critics say, as well as giving farmers and developers free state aid in reducing water tables to reclaim land. Equally as important, according to some insect scientists familiar with the program, the program is not operating to attack the most serious insect problem in the state, that of the salt marsh mosquitoes---*Aedes sollicitans* and *Aedes taeniorhynchus*. Faced with stringent federal controls over marsh draining to fight mosquitoes, the state and local governments have simply given up and turned their attention to less serious freshwater mosquito problems---in effect ignoring science and new ways of fighting mosquitoes.

Even some people connected with the mosquito control program acknowledge that they often do not have the data necessary to insure that their work will in fact help solve mosquito problems. The state needs a more scientific approach to the problem, state entomologist Thomas T. Blailock said last fall. "We need to know what species is breeding, exactly where it is breeding, and how many mosquitoes are being bred." Right now, he said, that information is often unavailable. He cited the case of a man near a swamp who thought the swamp was breeding mosquitoes. The source of the problem turned out to be water-filled containers in the man's own backyard.

In North Carolina, modern mosquito control dates from the 1957 report of the Salt Marsh Mosquito Study Commission, a group established by the General Assembly to look at ways of lessening the mosquito problem on the coast. In its report, the commission suggested ditching the marshes to speed the tidal flux in them---to, in effect, deprive mosquito eggs of the moisture needed to help them hatch. In the years following the report, thousands of acres were ditched. By 1967, according to figures compiled for the University of North Carolina's Water Resources Institute, more than 14 percent of the state's 159,000 acres of salt marsh were laced with parallel ditches designed to eliminate mosquito-breeding habitat. In some counties, up to 90 percent of the marshland has been ditched.

Scientists differ on the effect of this ditching. In 1973, two researchers from North Carolina State University, Drs. Kenneth L. Knight and Richard N. LaSalle, questioned in a research paper whether the marsh drainage was working. Other techniques seemed a better way of controlling mosquitoes. Others say the ditching worked but

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could have been much less extensive than it was. Still others, particularly those concerned with marine fisheries, question the effect of the ditching on marsh life. "The marsh is the start of the food chain," said one scientist concerned with the ditching, "and it's important to save it." At the least, said critics, the environmental effects of marsh draining should be studied. It is this last concern that has been paramount in getting marsh drainage stopped. Since 1969, the U.S. Army Corps of Engineers has required environmental impact statements of those interested in draining marshland. State and local officials, according to Corps representatives in Wilmington, have made no effort to comply. They simply stopped the ditching, and accelerated what has come to be known as "upland drainage"---freshwater mosquito control. Mosquito control officials say the changeover was for other reasons as well---"We had already finished ditching our marshes," said Charles McCotter, health director in Pamlico County. In the last two years, the Corps has received only one application to drain a marsh for mosquito control---and it turned that one down. In the meantime, upland drainage, over which Corps officials say they have only limited jurisdiction, has grown by leaps and bounds. Last year, more than 70 percent of the state's mosquito control budget went for such work.

Large draglines or hydraulic backhoes are the instruments of mosquito control in the state's eastern counties today. These machines are used to dredge creeks or dig drainage ditches that carry runoff from inland areas, which includes farms, woodlands and areas slated for development. Officials do not deny that the work aids in lowering inland water tables. Typically, says McCotter, the Pamlico County director, a farmer will dig ditches to the end of his fields and allow the water to collect there. Then the county comes in and digs a large ditch to carry away the collected water. The ditching is necessary to prevent the accumulation of stagnant water near farms, says McCotter, and to prevent the fouling of septic tanks in developed areas. And it has been useful. "Before they came in here, there were some places where it was almost impossible to get septic tank approval," said Robert Whitehead, a resident of Riverdale, a small community near New Bern. Whitehead says ditching done through the program helped solve three community problems---mosquitoes, flooding and septic tank contamination.

Critics of the program do not deny the need for some public drainage work in eastern counties. "I'm not against draining land and giving a better quality of life," said Dr. Charles S. Apperson, an entomologist at North Carolina State University. But, say Apperson and others, the program has moved into many other areas besides mosquito control since the marsh drainage ended. And that means that money originally earmarked for mosquito control is being used to solve other problems ---a diversion that appears to violate the state's dictum that mosquito control money be spent "exclusively for mosquito control." The problem has been especially noticeable the last two years, because the large amount of ditching work has driven costs considerably above the state budget allocation. In fiscal 1977-78, the state mosquito control program had to be supplemented with $200,000 in receipts from North Carolina's tuberculosis sanitariums. That money made up almost one-fourth of the overall $881,000 the state spent on mosquito control in fiscal 1977-78. The costs of the program for the current fiscal year are expected to exceed the budgeted figure of $687,163 by an amount in the neighborhood of $200,000.

Apperson says the program is out of balance ---that some of the money used for ditching should go to chemical and newer biological methods of mosquito control. Such a change would likely reduce the cost overrun. The state will pay two-thirds of the cost of the ditching projects, compared to only one-half the cost of spraying or biological control procedures. The change could also allow the state to move toward work with biological controls that upset mosquito breeding without the pollution problem accompanying chemical controls. One such control mechanism, a fungus that destroys mosquito larvae, is slated for field testing in North Carolina this year.

Beyond that, say Apperson and a number of other scientists, there is a serious need for better sampling of mosquito types and breeding locations. Apperson as well as some officials in the mosquito control program contend such surveillance will show that the program should never have been shifted away from the marshes in the first place. Salt marsh mosquitoes are more vicious than their freshwater counterparts, said Apperson, as well as more likely to carry diseases such as encephalitis. Apperson says marsh ditching helped with the salt marsh mosquito problem, but did not end it. Said Dr. Richard Axtell of State, "There is clearly an absence of prior investigation" of mosquito populations sufficient to justify the upland drainage. Another scientist, who asked not to be quoted by name, said, "There is some problem in freshwater areas, but it doesn't justify the massive amount of work going on. The problem is salt marsh mosquitoes."

Critics of the program point to the experiences and policies in several other states in calling for changes in the North Carolina program. South

Carolina considers ditching and dredging too expensive a control method for mosquitoes, according to a spokesman for the state's insect disease control program, as well as too open to political pressure exerted in favor of specific drainage projects. North Carolina officials say they attempt to be as fair as possible in deciding which projects get done first, considering such factors as the number of people affected by a dredging project, the height of the water table, and the amount of natural runoff, before attacking a project. Nevertheless, North Carolina's mosquito control program has been charged on occasion with benefiting certain groups more than others. In urban New Hanover County, a 1973 study of those benefiting from mosquito control work produced a list that included land developers, realtors and even one member of the county's planning commission.

New Jersey has undertaken a program of selective marsh draining and other, milder measures of water management to control mosquitoes. Dr. Joseph K. Shisler of Rutgers University said it is possible to fight salt marsh mosquitoes through marsh draining without causing environmental problems on the marsh and without antagonizing the Corps of Engineers. "We have good rapport with the Corps and with environmentalists here," said Shisler, "because we've taken the time to explain to them what we're doing." Shisler says he does not recommend parallel ditching, of the type done in North Carolina's marshes, as a means of mosquito control. But some ditching is permissible, he said. And in any case, environmental damage to the marshes is not ended if a state, as North Carolina has done, simply moves its dredging operations to the marshes inland. Fresh water draining through the inland mosquito control ditches can still damage the marsh by lowering the salinity needed in shellfish breeding grounds. In fact, it is this final criticism which may in the long run have the most effect on North Carolina's upland drainage mosquito control program. "If drainage drops the salinity down, shrimp and other shellfish are driven out in open water where they are easy prey for predators," said Dr. Howard Marshall, an Environmental Protection Agency scientist in Atlanta. Marshall, as a student in Chapel Hill, did much of the original research on the effect of drainage projects on marine life in North Carolina's marshes. "I'm not opposed to upland drainage, as long as you know what you're doing," Marshall said. But he said previous experience in North Carolina, at Rose Bay on Pamlico Sound, has shown upland drainage to damage marsh nursery areas. "The whole question of upland drainage should be looked at thoroughly," he said.

Jerry C. Perkins, who oversees the mosquito control program for the Division of Health Services, said the division is attempting to find out more about the effect of its upland drainage. The division has recently asked the North Carolina Wildlife Resources Commission to evaluate the environmental effects of the drainage projects. But that appears to be only the first of several needed steps. Entomologist Apperson cited these priorities for the mosquito control program in a recent letter to Perkins: more work on salt marsh mosquitoes; better mosquito surveillance to support the need for upland drainage projects; adequate management and design for the entire state mosquito control effort; and more entomological input into the county drainage projects. And Perkins agreed with most of the suggestions. "There has been a concern on the part of the state that we need more entomologists and more technical people," he said.* He said the state is "woefully behind" in documenting the need for mosquito control in specific areas.

That finding will probably surprise few people on the coast---residents or tourists---when mosquitoes begin returning to the area this summer. Surveys by Axtell and others in 1973 found that coastal residents considered mosquitoes, though they did not seem as numerous as in the 1950s and early 1960s, to be a continuing problem---bothersome as well as an economic drawback. Most property owners felt their property would increase in value with better control of mosquitoes and other biting insects. Since 1973, the opinions seem to have changed little. In the Hobucken area of Pamlico County, said one resident, mosquitoes were still in evidence in December last year, prompting consideration of a new spraying program for this summer. Said Hardison, the Lenoir County senator, "I'm still getting complaints from all up and down the coast about mosquitoes."

Typically, said Pittman, the marine resources official, the first realization an urban North Carolina resident will have of the coastal mosquito problem is when he decides to spend a week of late summer near one of the marsh areas. "Let's say you've seen a cottage in April and decided to rent it for later in the summer," he said. "It's entirely possible you'd get there, take one step outside the car and then decide to leave." □

*The Division of Health Services asked for an additional $1.2 million to fund the mosquito control program during the 1979-81 biennium. Some of those additional funds would have been used to hire an entomologist, an entomologist technician, an environmental engineer, and two engineering technicians. The budget request submitted by the Department of Human Resources to the Governor and the Advisory Budget Commission included only an additional $400,000 for the next two years, an amount that approximates the amount of the program's budget overruns during the last two years.

All of us, after all, whether we happen to be inside or outside of state government, are stewards of this beautiful state.

One Environmentalist's View From Inside State Government

by Anne Taylor

After years of grass-roots lobbying campaigns launched on a dime and sustained on adrenalin, the environmental movement in North Carolina can boast of some excellent environmental laws. The work of environmental lobbyists and the actions of committed state officials and legislators have made North Carolina a forerunner in many areas of environmental protection.

North Carolina is one of the few states to have enacted a State Environmental Policy Act fashioned after the "law-of-all-environmental-laws," the National Environmental Policy Act, which gave birth to the Environmental Protection Agency. The Coastal Area Management Act has made this state a leader in coastal protection legislation. And North Carolina has an excellent Sedimentation Pollution Control Act.

Grass-roots activists fought numerous pitched battles during the late 1960s and early 1970s to gain protection of the state's air, land, and water. In 1973, a lobbying campaign resulted in the record appropriation of $11 million for the state parks. The unprecedented funding had appeared doomed until hundreds of people, notified during a frenzied, 20-hour effort to reverse unfavorable action in a committee of the General Assembly, victoriously brought the $11 million alive again and on its way to reality. The Committee for the New River organized every existing environmental group into a united front to protect forever the second oldest river in the world. During the peak of that debate, the auditorium of the Legislature was awash with people wearing blue and white banners proclaiming "New River Like It Is!"*

The success of many of the lobbying efforts was due to "The Network," an elaborate system of telephone chains that covered and still cover the state. Lobbyists and observers in the North Carolina General Assembly orchestrated letter writing, petitions, telegrams, and those godforsaken midnight "calls to action" through the network. They produced slide shows, tapes, and other materials to educate the troops and rally them to bigger battles and greater victories. It was hard work and it required long hours. But it was fun. And from it emerged close friendships and a sense of camaraderie.

The environmentalists had an impact on the Congress as well as on the North Carolina General Assembly. National environmental organizations benefited mightily from the North Carolina grass-roots network and even from some North Carolina shenanigans that piled the halls of Congress with mailbags and jammed lawmakers' telephones with calls.**

North Carolina volunteers who lobbied in the Congress did not find it easy. The complicated legislative proposals being debated required a lot of homework, and, of course, it was expensive to make calls to or visit Washington. I remember vividly the time when the Washington office of the Sierra Club offered to pay the plane fare if someone from North Carolina would visit a North Carolina congressman whose vote at a critical point in committee deliberations was considered essential to passage of the Clean Air Act. I was able to overcome my fear of plane travel only by remembering that someone was needed. My husband, left alone for the first time with our 1- and 3-year-old sons, loathes clean air to this day.

When Friends of the Earth in Washington

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*Other laws enacted during the peak years of the environmental movement in North Carolina included the Natural and Scenic Rivers Act, the Land Policy Act, and Land Conservation Act, the Floodway Act, the Capacity Use Act, and the Oil Pollution Control Act.

** North Carolina environmentalists helped ensure passage of the Clean Air Act, the Federal Water Pollution Control Act, the Safe Drinking Water Act, the Toxic Substances Control Act, the Resource Conservation Recovery Act, the Federal Insecticide, Fungicide, Rodenticide Act, the Forest Management Act, the Wilderness Act, and others.

I found myself 20th in line to speak after pin-striped, wing-tipped attorneys from powerhouses such as Shell, Exxon, CP&L, Duke Power, southern furniture manufacturers and other conglomerates.

asked environmental organizations to hold a press conference in North Carolina on the Clean Air Act, the Conservation Council of North Carolina, the League of Women Voters, and the Sierra Club scratched up $26.50 for the use of a room in Raleigh's Velvet Cloak and for coffee and doughnuts for the press. We contacted TV, radio, and newspapers and spent hours researching a carefully worded joint statement that the League of Women Voters was to deliver. The media turnout was overwhelming, and panic began to mount in the three intrepid spokespersons as the TV lights went on. We made a last-minute call to Friends of the Earth in Washington, more, I think, to build our confidence than to verify every word in the statement. The three of us sat down, Drew Diehl of the Conservation Council of North Carolina and I flanking our fearless leader and spokeswoman, Carol Schroeder. The first words Carol uttered were in a whisper: "I can't do it, Anne---here," and she shoved the prepared statement into my freely sweating hands. With the exception of my four-year-old son wandering on camera, the press conference appeared surprisingly professional when it was aired on the six o'clock news.

The tide of success and experience gained at the state and federal levels swept our people into activities and organizations aimed at local environmental ordinances. "The Network" swelled even further. Over the years tight bands of friendship formed among people, many of whom had never met, and some who still have not. Even to this day, when its members need it, the Network is used, although in quieter and less visible ways.

And it is quieter now---the environmental movement is less visible. We have all been asked if, or told that, the environmental movement is dead. It is not dead at all. But it has turned to the grueling task of implementation. One obvious measure of the silence of the movement is the shrinking number of well-informed environmental press reporters in North Carolina. Grass-roots leaders have scattered too. Many became legislators, council people, and interestingly enough, even bureaucrats, often to the shock or at least the skepticism of the grass-roots troops. Others simply went back to living their lives. We went on to other things or back to our neglected families to watch the world improve. Great laws had been born and powerful mechanisms were in place. But few of us thought or planned much beyond the heat of the battles or the celebrations of winning. I first realized that we could not rest on our legislative accomplishments after I naively wrote a letter to Republican Governor Jim Holshouser suggesting names for appointment to the Sedimentation Pollution Control Commission we had lobbied so hard and successfully for. The President of the League of Women Voters told me I was wasting my time

because all of my candidates were Democrats and several were even women. Later, the state passed a law stating that North Carolina's Air Quality standards could not be any stronger than the minimum federal standards, regardless of the fact that our air is uniquely fragile. Then came the state's authority to implement for the Environmental Protection Agency the National Pollution Discharge Elimination System (NPDES) permits under the Clean Water Act. We belatedly realized that the permits were no longer subject to the National Environmental Policy Act.

From 1974 to 1977, we found ourselves more on the outside than ever before while implementation of these laws began to take place in a bureaucratic maze few of us comprehended. We had not adequately planned for our involvement in the care and maintenance of the state, federal and local laws we had played so great a part in creating. Pieces are scattered among departments, divisions, units, sections and offices of government---each with its own extraordinarily narrow part to play in the enhancement of what altogether was to be environmental protection.

Boards, councils and commissions at the state level were formed for every imaginable environmental purpose.* With a few notable exceptions however, environmentalists have not been appointed to these decision-making bodies, and they have not yet joined together to go about demanding representation. The few who have been appointed find their commitment to the total of environmental quality relegated to a small piece and kept separate and apart from the other pieces that make up the whole---the land, the water, and the air.

How we arrived at this disjointed state of affairs is not too important and may even have been unavoidable. Laws came into effect at different times with varying degrees of funding. Officials charged with authority to implement tended to interpret their roles to match their own degree of commitment. Political and special interest pressures served to set priorities. I recall an air quality standard setting hearing before the North Carolina Air Quality Council so complex that I spent well over 60 hours preparing a three-page statement against weakening existing standards. I found myself 20th in line to speak after pin-striped, wing-tipped attorneys from powerhouses such as Shell, Exxon, CP&L, Duke Power, Southern Furniture manufacturers and other conglomerates. A humbling experience shared repeatedly by many of us "environmentalists."

Being, as I am now, on the "inside," it is graphically clear that the very nature of bureaucracy perpetuates our dilemma. Only the public is in a position to raise a question about how one section, division, unit, individual, or even department of state government serves its intended purpose. Fondly referred to as "turf," no one within government dares step on another's. People mumble and grumble. But to cast the first stone, you had best be sure you have nothing, absolutely, to lose.

Great leaders with strong commitments can transcend the turfs. Some of that ability to step above narrow boundaries is emanating from Washington. President Carter, through EPA Administrator Doug Costle, has proposed uniform standards for public participation requirements in three of the federal acts, the Resource Conservation Recovery Act, the Safe Drinking Water Act, and the Clean Water Act. Interested citizens could better understand and take advantage of avenues and opportunities for participating if one approach applied to all of these laws. Final regulations for uniform public participation under the three acts were published in the February 16, 1979 *Federal Register*. They include "general provisions which require open processes of government and efforts to promote public awareness in the course of making decisions in programs and activities of the three acts."

Two other federal initiatives are before the state now in the State/EPA Agreement and Consolidated Grants Legislation. Through these two pending mechanisms, a percentage of the grants to the state under four of the six major environmental laws (the Resource Conservation Recovery, Clean Air, Clean Water, and Safe Drinking Water Acts) could be used to coordinate the administration of these laws, to place increased funds in programs to meet environmental needs unique to North Carolina, or to create new programs not now being adequately addressed in North Carolina. The possibilities are almost unlimited.

For instance, no one state agency is now capable of adequately responding to the increasing incidence of hazardous materials contamination. Whether it is PCBs, asbestos in public buildings, the mysterious tree kill in Northwest Wake County or any of the growing number of environmental insults affecting our quality of living and peace of mind, the state response is divided into the limited authorities and responsibilities of several agencies of government. Critical gaps are left open without comprehensive administration of a total state response.

If, as Thomas Jefferson believed, "people are inherently capable of making proper judgments when they are properly informed," a massive North Carolina program of effective environmental

*Among them were the Sedimentation Pollution Control Commission, Environmental Management Commission, Health Services Commission, Air Quality Council, Water Quality Council, the Coastal Resources Council, Marine Science Council, Land Policy Advisory Committee, Solid Waste Committee, the Trails Committee, and the 208 Policy Advisory Committee.

management through public involvement and public education could be established through a consolidated grants proposal bringing the total environment as encompassed in the four federal acts into a North Carolina perspective.

The environmental movement is not dead. It has turned to the grueling task of implementing legislation.

There are many possibilities under this federal initiative, but there is also a great deal the state could do without waiting for the federal government.

Let me offer one possibility that I think is worth pondering--- perhaps because of my volunteer's experience with shoestring budgets and my great faith in the power of grass-roots commitment. The Land Quality Section of the Land Resources Division of the Department of Natural Resources and Community Development has 13 people who are responsible for enforcing the Sedimentation Pollution Control Act. That is an incredibly insignificant number of people when you consider the thousands of construction projects going on each day throughout the state. Soil runs off the construction sites, and into our creeks and streams, clogging channels, causing flooding, killing fish and wildlife and increasing our water treatment costs. We now consider two alternatives: accept ineffective enforcement of that law or increase the budget of the Land Quality Section to expand its staff. One is not acceptable, and the other is astronomically expensive if manpower is ever to be adequate. Consider a third alternative. The Division of Environmental Management of NRCD has 400 employees, many of whom are constantly out in the "field" doing air quality work or water quality work. They have no responsibility for sedimentation. But they are certainly capable of spotting violations of a state law and reporting them to those who are charged with enforcement of the Sedimentation Pollution Control Act. Should this team approach spread to the department's forest and park rangers, the wildlife and marine fisheries employees, we would have expanded our enforcement capability a hundred fold at no extra cost to taxpayers. The Land Quality Section could go about managing and administering the law of the state much more effectively by preparing for the increased reporting. If the public also becomes aware of the requirements of the Act and ways they can participate in enforcement, we begin to see ever greater possibilities of social pressure relieving the number of enforcement proceedings necessary to stem the flow of soil into once clear and living streams.

The teamwork should extend into other environmental areas as well as sedimentation pollution control. The dumping of hazardous wastes and air and water quality violations present more complex problems. But there is no reason to believe that the average engineer, biologist, botanist, and informed citizen cannot discern a problem outside of his or her particular specialty. There is no reason to believe that such individuals would hesitate to report questionable activities to the responsible state agency if they realized that by so doing they were enhancing the quality of their own lives.

It is not mawkish to describe what might result if such an approach were managed in a carefully orchestrated schedule of administration as a conservation ethic or a state stewardship. All of us, after all, whether we happen to be inside or outside of state government, are stewards of this beautiful state. As one of the six highest growth states in the highest growth region of the United States, North Carolina faces the monumental challenge of developing a healthy economy while, at the same, preserving a healthy environment.

State government could do a great deal in environmental protection with its large dollar and personnel resources. Tremendous strides have already been made in some areas by dedicated officials who are committed to improving and protecting the quality of North Carolina's economic and environmental well-being. But the role of the public should not be underestimated.

Unless citizens know the rules of the game and participate in the game, simply caring will never be enough. Since I have been on the inside, I have had my eyes opened to the power of an informed and active public. Whether it is for or against vigorous health and environmental protection, the squeaky wheel gets the grease. Strong leadership and commitment at the Cabinet level of state government is critical and an essential ingredient if staff level personnel are to avoid constant frustration in their attempts to carry out their responsibilities. But we can not let state government take the wheel and drive us to places we may not want to go, or we are just as much to blame for our final destination.

The state and federal governments have the capability and, I think, the responsibility to translate the myriad of environmental laws and programs into an environmental education and public involvement effort which will allow citizens to see the choices, the alternatives, open to them. But the rules of the game must be made clear.

If, then, we choose to leave all choices to government officials, we will have failed to carry out our responsibilities as citizens in this democracy, but we will also have made a conscious choice to do so. □

NORTH CAROLINA'S FISCAL REVOLUTION

The tax structure it produced has left this state in an enviable position

by Charles D. Liner

NORTH CAROLINA'S tax structure, a product of a major tax reform in 1921 and bold legislative action in the 1930s, has put this state in an enviable position. North Carolina is less in need of basic tax reforms than most states and far less susceptible to radical initiatives like California's Proposition 13. The state tax structure, which automatically produces substantial increases in revenues at existing rates as the state's economy grows and prospers, should afford an opportunity in future years for the state to improve government services through increased spending and, at the same time, to reduce North Carolinians' tax burden, either directly by reducing state tax rates or indirectly by enabling local governments to reduce property taxes.

NORTH CAROLINA'S enviable position is primarily the result of a reorganization of government finance and taxation that occurred during the 1931 and 1933 sessions of the General Assembly in response to a major fiscal crisis precipitated by the Great Depression. North Carolina's fiscal revolution was unprecedented in American history, and to this day no state has come close to matching the boldness of the measures taken then.

Counties and municipalities were in serious financial trouble even before the depression. In 1928 per capita state and local debt in North Carolina was 4½ times the average in other states and higher than in any state except New York; property tax levies for debt service equaled 46 percent of total property tax levies. With the onset of the depression, the burden of debt and high property tax rates produced a serious financial crisis for counties and municipalities and popular demand for relief from high property tax rates.

In response to these conditions, the 1931 General Assembly took over responsibility for all operating expenses of the public schools for a six-month term and full operating and financial responsibility for all county roads and prisons. Thus, in one stroke the state assumed responsibility for three major functions of county government that had been financed mainly from local property taxes. These measures reduced county property tax levies by 29 percent and total property tax levies by 20 percent in only one year. The state also created the Local Government Commission to control local debt and to help local governments cope with their debt problems.

Despite these measures the fiscal crisis had worsened by the time the General Assembly convened in 1933. More than 60 counties and about 150 of the 200 municipalities faced default on debt payments, and the state faced a large deficit for the current fiscal year. The 1933 General Assembly responded as boldly as the 1931 legislature. It committed the state not just to keeping the schools open but also to extending the term of every school in the state to eight months. North Carolina thus became the first state to finance equal school terms throughout the state (the eight-month school term was then the longest state-supported term in the nation). The General Assembly also abolished the state property tax, which had been imposed temporarily to finance schools, and abolished all local school property taxes. To finance its new responsibilities and to balance the budget, the General Assembly increased rates on state taxes and enacted the 3 percent retail sales tax and alcoholic beverage taxes.

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North Carolina's fiscal revolution was unprecedented in American history, and to this day no state has come close to matching the boldness of the measures taken then.

THE FISCAL REVOLUTION of 1931-33 was based on two key and long-established principles: first, that the state is ultimately responsible for achieving a uniform, statewide school system; and, second, that the state should derive revenues to support state programs from taxes other than the property tax, which it should leave to counties and municipalities to use for their purposes.

The first principle had been established when the state created the statewide school system in 1839 by mandating equal school terms and by distributing state funds on a per capita basis. The principle had been reaffirmed in the 1868 Constitution, which required a general and uniform school system with a minimum term of four months (the term was increased to six months in 1918). Before 1931 the main problem in achieving a uniform school system was that schools had to be financed largely by state and local property taxes. To achieve the constitutionally mandated school term, poor counties with low tax bases had to impose higher property tax rates than wealthier counties. Urban counties were able to spend more for schools and to have a longer school term than rural counties. Between 1901 and 1931 the state tried to remedy this problem by making a special appropriation to an "equalizing fund," which was distributed only to the poorer counties to bring their school terms up to the minimum and to equalize tax rates, but the urban counties were still able to provide better schools and longer terms.

Full state funding of the eight-month school term in 1933 brought schools in poorer, rural areas to full equality, at least financially, with schools in urban areas. At the same time, however, the General Assembly reaffirmed the policy that the people could tax themselves to improve their schools above the level provided by the state. The legislature abolished existing local school taxes, but it authorized the holding of referenda on levying an additional property tax to supplement the state-financed school programs.

The second principle, the separation of state and local revenue sources, had been established in 1921, when the state eliminated the state property tax and replaced the lost revenues by enacting a progressive income tax on individuals, a corporation income tax, and a state gasoline tax to finance a new state highway system created when the state took over responsibility for 5,500 miles of county roads.

The fiscal revolution of 1931-33 not only solved the immediate fiscal crisis but also provided long-lasting benefits to the state. First, it permanently reduced reliance on the property tax. Second, it gave the state a tax structure that was very responsive to economic growth and therefore enabled the state and local governments to cope with post-war fiscal pressures caused by the baby boom and increased demand for government services. Third, it resulted in a more equitable distribution of government services, particularly for public schools, and a fairer distribution of tax burdens.

Between 1930-31 and 1936-37, local tax revenues fell from two-thirds of total state and local tax revenues to slightly over one-third. County property tax revenues were reduced by half between 1928-29 and 1933-34. Today, property taxes account for less than 25 percent of total state and local tax revenues, compared with an average of over 36 percent for the nation (in recent years the percentage has been about 43 percent in California and over 50 percent in some northeastern states).

THE SHIFT of financial responsibility for schools, roads, and prisons and the reduced reliance on local property taxes proved especially beneficial after World War II, when the baby boom and general prosperity increased the demand for schools and other government services. As it turned out, the tax system adopted in 1933 enabled the state to meet increased demands without significantly changing the tax structure or even raising tax rates, whereas in most states property tax rates increased substantially and most states had to enact new income or sales taxes and increase rates on existing taxes. This is perhaps the most remarkable aspect of the fiscal revolution. It produced a tax structure that has remained essentially unchanged. (The gasoline tax has increased from 6 cents to 9 cents, although 1 cent is earmarked for municipal streets, and the top income tax bracket of 7 percent was added in 1937, but otherwise the rates of the three major state taxes have not changed.) Yet this tax structure has brought about dramatic increases in state tax revenues that permitted the state to increase expenditures and improve programs. State tax revenues have grown from $44 million in 1933-34 to over $2.3 billion in 1977-78. Between 1969-70 and 1977-78, General Fund tax collec-

The question for today is not whether past growth in spending and taxation has been justified but whether such growth should continue at the same rate as in the past.

tions increased at an average annual rate of 12.1 percent despite two recessions during this period. This growth rate results in a doubling of tax revenue about every six years.

The constant growth in its tax revenues---which finance not only state-operated programs like highways, prisons, higher education, and mental hospitals but also schools and other health, education, and welfare programs administered by counties acting as agents of the state---has enabled the state to increase expenditures dramatically in every area, expand existing programs, and inaugurate new programs. (A large system of community colleges, for example, was created almost from scratch in the 1960s.) General Fund expenditures today are over eight times the level of 1959-60 and over 16 times the level of 1949-50. Total state expenditures have increased from only $50 million in 1933-34 to almost $4 billion in 1977-78. This constant growth has also enabled the state to relieve fiscal pressures on local governments by taking over financial responsibility for the courts system and by sharing its tax base with local governments, the most noteworthy example being the local-option sales tax.

THERE ARE four central issues today in state and local government finance in the United States: the fiscal condition of cities and states, the role of the property tax, equality in school finance, and growth in government spending and taxation. The fiscal condition of North Carolina counties and cities contrasts sharply with the condition that existed before the fiscal revolution. Both the state and local governments have low debt and good credit ratings (only two states had lower per capita state and local debts in 1975-76). Reliance on the property tax is low, property tax rates are lower than in most states and fairly stable in most places, and, in contrast to the situation in many other states, local schools do not depend primarily on local property tax revenues.

But the last two issues do present questions for North Carolina. Disparities in school finance between poor and wealthy jurisdictions are not as large as in many other states, where the method of financing schools mainly from local property taxes has come under attack in the courts. But significant disparities do exist because the state no longer finances all operating expenses and the wealthier school districts are better able to supplement state funds with local funds. Although federal grants, which tend to favor poor jurisdictions, offset differences in local funds to some extent, essentially the same situation exists today that existed before 1931---poorer counties must impose higher property tax rates than wealthier counties in order to raise a given amount of revenue. (The same problem exists with respect to state-mandated programs that must be financed from local property taxes.) It is interesting that a recent study commission recommended a system of equalizing school grants like that used between 1901 and 1931.

Controlling the growth of government spending and taxation is perhaps the key issue in government finance today. Many states have enacted or are considering tax or spending limitations of one sort or another. North Carolina ranks 49th in per capita state and local government spending and 45th in per capita state and local taxation. These low rankings are due in part, however, to the state's low income, the relatively low cost of living, and to the fact that there are no large cities and most people live in small towns or rural areas where per capita expenditures tend to be low. It is paradoxical, nevertheless, that North Carolina ranks among the top few states in growth of state and local government spending. Between 1965-66 and 1975-76, for example, per capita general expenditures of state and local governments in North Carolina increased 209 percent, a rate surpassed by only five states (Hawaii, Maryland, New Jersey, New York, and South Carolina).

Because the growth in state spending in North Carolina has been financed by a tax structure that automatically produces large increases in revenue with constant tax rates, there has been relatively little popular resistance so far to the growth in government spending financed from state revenues. There is constant pressure at the local level to keep property tax rates low, but property tax revenues also have generally increased substantially because of economic and population growth and increases in real estate values.

MOST NORTH CAROLINIANS would probably agree that the growth in government expenditures since World War II has been justified by the needs created in shifting from a predominantly rural to a more urban and industrialized state, and also by the need to expand and improve public schools

and higher education to serve the burgeoning school-age population. But the question for today is not whether past growth in spending and taxation has been justified but whether such growth should continue at the same rate as in the past.

Since the demands on state tax revenues should not be as great as they have been in the past, North Carolina should be able to both improve government services through increased spending and provide some relief from current tax burdens.

One new element is the high rate of inflation. Until the rate of inflation increased in the late 1960s, state revenues increased mainly due to real growth in the state's economy. But state income taxes increase the percentage of income paid in taxes even when the increase in income merely offsets increases in the cost of living.

Increases in revenues from the existing state tax structure are independent of the need for government spending. In the past, although there has been a surplus of revenues over expenditures every year since the depression, the General Assembly has chosen eventually to spend all tax revenues, and on occasion it has increased some tax rates and enacted minor new taxes such as the soft drink and cigarette taxes. But today the state no longer faces the huge demands for increased spending that it faced earlier. For example, in education, which accounts for two-thirds of General Fund expenditures, the state now faces a baby bust instead of a baby boom---school enrollments are falling and will continue to fall. The point is not that the level of state spending is adequate but rather that there is a good chance that in the years ahead the pressure to spend the large increases in revenue generated automatically by the existing tax structure may not be as great as it has been in the past.

If the General Assembly should choose to reduce the rate of growth in state spending, it will have to take deliberate action to reduce the growth in tax revenues, for otherwise tax revenues will continue to increase as in the past. Assuming continued growth in the state's economy, if the tax structure is not changed we can expect total state tax revenues to double roughly every six years.

If the General Assembly chooses to provide a general reduction in tax burdens, it has essentially three options. First, it can reduce state taxes. The main candidates would be the personal income tax and the retail sales tax, since gasoline tax revenues are not growing very fast. Reduction of rates or even repeal of other state taxes would not provide general tax relief. The problems in granting tax relief through the personal income tax are that (1) this tax is usually regarded as the most equitable tax because it is based on ability to pay and (2) the poorest families and individuals do not pay income taxes and therefore would not receive tax relief. However, the tax could be "indexed," or adjusted annually to account for inflation, so that tax revenues increase only with increases in real incomes. The retail sales tax rate of 3 percent is already low---only three states have lower rates, and 30 states have higher rates. One possibility is to exempt food sales from the retail sales tax. While this measure would provide relief for everyone, it would result in a large loss of revenue at once---over $150 million in state revenues next year and over 25 percent of local government sales tax revenues. The state could recover some of the lost revenues, however, by increasing the state and local sales tax rates on items other than food.

A second option is for the state to use its growing revenues to enable counties and municipalities to reduce the property tax. This could be done in one or both of two ways. First, the state could share its tax base or its revenues with local governments, perhaps through a general revenue sharing program similar to federal revenue sharing, thereby enabling local governments to reduce property taxes. Second, the state could take over more of the financial responsibility for statewide or state-mandated programs that are now partly financed by counties through the property tax.

As a third option, the state could provide direct property tax relief through a circuit-breaker system similar to those already enacted in more than half the states. With a circuit-breaker system, the state would give an income tax credit or a rebate for local property taxes that exceed a certain percentage of family income. The circuit-breaker is intended to relieve excessive property taxes on the poor and elderly. It is not, however, a general tax relief measure.

THE FISCAL REVOLUTION of 1931-33 left North Carolina with a sound system of state and local finance and a state tax structure that has permitted an expansion and improvement of government services without the need to increase tax rates substantially or to enact major new taxes. As the state's economy grows and prospers, tax revenues from the existing tax system will continue to increase as they have in the past. Since the demands on state tax revenues should not be as great as they have been in the past, North Carolina should be able to both improve government services through increased spending and provide some relief from current tax burdens. □

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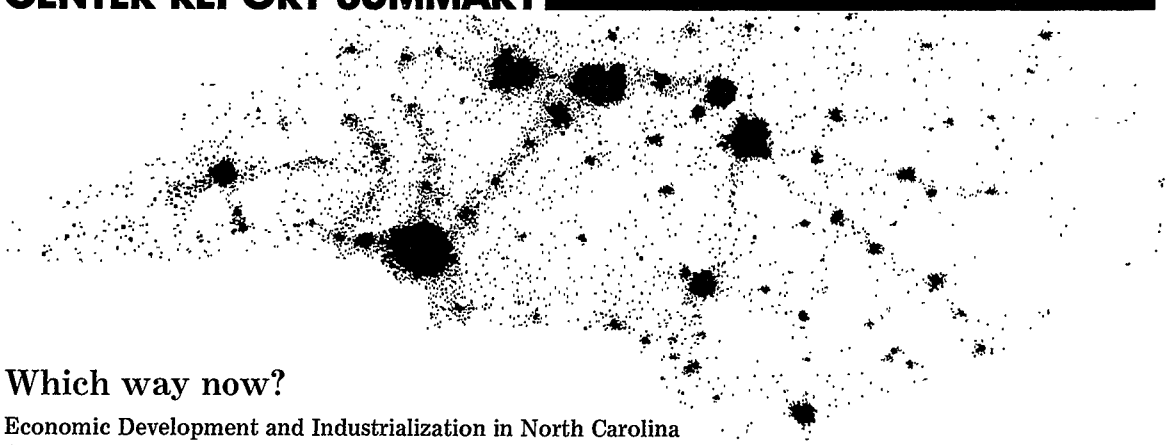

Which way now?

Economic Development and Industrialization in North Carolina

North Carolina is a predominantly rural state, ranking 11th nationally in the size of its industrial work force and eighth in the size of its manufacturing work force. A larger proportion of North Carolina industrial workers are employed in manufacturing than is the case in any other state, while a smaller proportion of its industrial workers are unionized than in any other state. From 1966 to 1976, only Texas (which has twice as many people) and California (which has about four times as many people) gained more manufacturing jobs than did North Carolina. During this period North Carolina per capita personal income grew by 240 percent, compared to 190 percent nationally. Yet North Carolina ranked only 41st among the states in per capita income, and its average hourly manufacturing wage was the lowest in the nation.

Which way now? Economic Development and Industrialization in North Carolina, a study by the N.C. Center for Public Policy Research, examines the factors underlying these and other trends in the state's economy and considers the effects of state and federal programs and policies on 10 counties in Regions K and L. Although the study focuses on the role of industrial development, especially manufacturing, it points out the importance of non-manufacturing employment and national trends in state economic development.

The recently published study raises important issues about the actual impact of state and local development policies on the state's recent and prospective economic growth. Specifically, it observes that the rapid industrialization of North Carolina has resulted more from the "sunbelt phenomenon" and other national trends than from the actions of state government. Moreover, the urban, urban fringe, and rural areas of the state have developed differently in the past and will continue to develop differently. These and other findings substantiate the conclusion that the Balanced Growth Policy of the Hunt administration is an inadequate statewide development policy that offers little guidance for the management of urban growth, while encouraging unrealistic expectations about industrial development in rural areas. This Balanced Growth Policy is the most recent expression of an economic development strategy based on industrial recruitment, which was first adopted in North Carolina by Governor Luther Hodges over 20 years ago. The current policy also espouses concern for providing more diverse and better jobs where people live and for closing the income gap between North Carolina and the United States. Although some progress has been made toward these somewhat inconsistent objectives during the Hunt administration, the state's influence on economic development has been modest at best. While the Governor may profess a willingness to "move heaven and earth" to get a Phillip Morris plant in Cabarrus County, the fact is that neither the Governor nor the state can influence heaven, earth, or Phillip Morris very much.

According to the report, the major economic development issue confronting the state is how to best manage growth to maximize its benefits for all citizens, recognizing that some areas will develop rapidly, some slowly, and some very little, if at all. Specific recommendations and suggestions are offered to address this issue. Important areas of concern include the comprehensive management of water resources, the development of rural, urban, and inter-urban transportation alternatives, the creative assessment of economic development options available to regions and communities, and public accountability in the management of economic growth. The study calls for a statewide development policy that concentrates on the management of growth in all areas of the state, while recognizing the differing needs and capabilities of urban, urban fringe, and rural areas and encouraging the greater involvement of local governments and their citizens in choices about how their communities are to grow. □

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The Demise of a State Program

A study done by researchers at East Carolina University concludes that the demise of the Statewide Prekindergarten Screening Program (SPSP) was due, in part, to defects in policy development. The study analyzes the screening program, which was begun in October, 1975, and ended in September, 1977, in terms of a model of social policy formation. The model presents eight stages: identification of problem, analysis, informing the public, development of policy goals, building public support---legitimation, program design, implementation, and evaluation and assessment.

The study, done by Linda Hunt and Pat Allen in cooperation with John R. Ball, head of ECU's Department of Social Work and Correctional Services, identifies problems at three of those stages in the development of the screening program: development of policy goals, building public support---legitimation, and program design.

In the "development of policy goals" stage, "general discussion within the appropriate agencies should occur, leading to a general statement of broad-based goals or objectives." The study suggests that the policy goals of the screening program were largely determined by then Secretary of Human Resources David Flaherty. He decided that the program would screen all four-year-olds, that it would have a non-medical orientation, and that the results of the screening would be given to kindergarten teachers so children could receive the individualized instruction they needed. "Although the policy goals were formulated in this stage," the study says, "they were essentially the ideas of one administrator as opposed to a group consensus. Consequently the support base for the program was already weakened."

The program was further undermined, the study says, in the stages of "building public support---legitimation" and "program design." The screening project was rushed into final form to be ready in time for the 1975 legislative session, responsibility for the program was given to the network of Development Evaluation Centers (DECs), which were then making the transition to state control, and the program was funded as a line item in the DHR budget without special supporting legislation.

The rush to get the program started, according to the study, resulted in the alienation of "powerful and influential groups" that included "people like the medical and pediatric communities, the public health department, the DPI [Department of Public Instruction], former study groups, and even the administrative hierarchy within the Department of Human Resources." DPI officials "appeared to lose interest as they were concerned mainly with the new kindergarten program as well as the Equal Education Bill." And the health departments, "as locally controlled autonomous agencies, withdrew their support after the program was placed under the state-controlled DEC framework."

The DECs, according to the study, were struggling with their own internal difficulties at the time they were given responsibility for the screening program. "The program may have had a stronger beginning," the study says, "if it had been placed within a strong, well-organized and supportive division of state government."

In regard to the funding of the program, the study notes: "Its financial lifeline extended only to the point when the Department of Human Resources chose to use the money elsewhere. Thus, a major statewide effort for children existed at the pleasure of a state agency administration." Flaherty's successor as Secretary of Human Resources, Dr. Sarah Morrow, decided, indeed, to use the money elsewhere. "The secretary wholly supported the basic premise of screening, but felt that best results are obtained by screening high risk infants rather than four-year-olds. So, as part of the new direction of her office, she chose to terminate the SPSP and focus on the development of an infant program."

The study concludes: "It may be idealistic for state government to adopt one or another specific social policy model, but it is imperative to maintain continuity of policy development. An absence of the science of policy making in state government is a very expensive way to effect program development."

Copies of the study are available from John R. Ball, Chairperson, Department of Social Work and Correctional Services, East Carolina University, Greenville, North Carolina 27834.

And furthermore

Legislature Considers Child Restraint Bills

Two bills that would require drivers to use child restraint devices in their automobiles were introduced during the current session of the General Assembly. (Efforts to encourage the use of child restraints through education and legislation were the subject of an article in the winter issue of *N.C. Insight*.)

One of the bills was introduced by Rep. Ted Kaplan of Forsyth County. Kaplan had the bill drafted after a presentation on the use of child restraint devices at a conference in Winston-Salem. The other bill was introduced by Rep. George Miller of Durham County. Miller's bill emerged from the deliberations of a group brought together by Dr. Minta Saunders, Assistant Secretary for Children in the Department of Human Resources. That group included officials from a variety of state agencies involved with safety issues and children's issues and representatives of medical and public health organizations.

The Kaplan bill would provide that "every driver of this State, when transporting any child under the age of four on the roadways, streets or highways of this State, shall use a child-passenger restraint to protect the child." The Miller bill would apply to more children; it calls for the use of child restraints for all children under the age of five. But under the Miller bill, use of a child restraint would be required only of a driver "who is transporting his own child of less than five years of age, when the driver is operating his own motor vehicle (or a family purpose vehicle), . . ." Violators of the law would be subject to a fine of up to $100 and/or imprisonment for up to 60 days.

The law would not apply to "vehicles registered in another state or jurisdiction; ambulances or other emergency vehicles; vehicles of over nine passenger capacity or any vehicle exempt from the seat belt safety equipment requirements by virtue of federal law or regulation; or a temporary substitute vehicle."

The Miller bill has a Sunset provision. The law would become effective on July 1, 1980, and expire on July 1, 1983. It also calls for the University of North Carolina's Highway Safety Research Center to conduct---during the three years of the law's existence---"a statewide study to determine the effectiveness of the child restraint system in preventing deaths and injuries."

Making North Carolina Prosper

A Critique of Balanced Growth and Regional Planning, scheduled to be published by the Center in June, takes a hard look at the Governor's Balanced Growth Policy, which is designed to help develop and urbanize dispersed communities across the state.

- How will the policy affect the economic progress of the state?
- How does the policy build upon the work previously done in state and regional planning?
- What is the quality and usefulness of economic development planning by regional councils of governments (COGs) and what is the role of these councils in the state policy framework?
- How do we avoid the pork barrel approach to public investments, ensuring that the public's money is wisely used to help make North Carolina prosper?

The report will address these questions. Based on research of the literature on planning and economic development and interviews with economists, regional planners, developers and state officials, the report includes critiques of economic development plans from five of the state's seventeen planning regions. The report complements and follows up on the recent Center report, Which way now? Economic Development and Industrialization in North Carolina. To reserve copies, fill out the enclosed card.

The North Carolina Center for Public Policy Research, Inc. is a non-profit, non-partisan, non-ideological research institution committed to the independent scrutiny of state government directed solely to the improvement of governmental performance. It is governed by a Board of Directors broadly representative of the people of North Carolina.

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