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A new model to reach water quality goals

by Richard
T. McGuire

New York farmers watched nervously throughout the 1970s and 1980s as various nonagricultural sectors of the economy came under increasing environmental regulation. Following the "Alar scare," the national wetlands debate, and a state law imposing new reporting requirements on pesticide use, anxiety levels in New York's agricultural community were high, to say the least.

What especially worried many New York State farmers (there are about 36,000 of them) was the "command and control" regulatory ratchet applied by federal and state officials to smokestacks, discharge pipes, landfills, and other sources of pollution.

It seemed clear that regulators would eventually turn their attention to nonpoint source pollution, including agricultural nonpoint pollution of ground and surface water. Farmers feared on-site monitoring, large fines, complicated court proceedings, and complex interaction with state and federal bureaucracy.

It was in this context in mid 1990 that the City of New York, using powerful constitutional provisions which make its watershed regulations de facto state law, moved to protect 1,900 square miles (an area nearly the size of Delaware) in its two upstate watersheds: the Croton and the Catskill-Delaware. Taken together, the two watersheds provide drinking water for nine million people each day. They also encompass about 550 farms, many of them small- to medium-sized dairy operations, some not economically strong enough to absorb any significant requirement for capital outlay.

The move to regulate the watersheds was not undertaken in a vacuum. Driven by the 1972 Clean Water Act and by the 1986 amendments to the 1974 Safe Drinking Water Act, the city had come under extreme pressure, both from the federal En-

vironmental Protection Agency (EPA) and from the New York State Department of Health, to protect its water supply.

As it turned out, the city was given two choices. The first required the creation of a water filtration system at a present-day cost of about \$6 billion, plus about \$400 million per year in operating costs. A second choice, agreed to by EPA only because New York City has one of the finest water supply systems in the world, both in terms of quantity and quality, was to impose stringent controls on land use in the Catskills. For a city with the kind of budget pressures which are endemic to New York, there was only one realistic choice: regulate the watershed.

Initially, the city contemplated regulations which would have required farmers to barn grazing areas and would have prohibited storage of animal waste or artificial fertilizer within 500 feet of any water course, prohibited spreading fertilizer or manure within 500 feet of any watercourse, and restricted the handling of pesticides. In this particular terrain, streams crisscross every farm. Few fields are more than 500 feet from a creek.

Word of the city's intentions caused most observers to predict a prolonged, bitter, litigious, and ultimately destructive struggle between people living in the watershed and the city. Earlier taking of lands by the city to create some of the nineteen reservoirs in its system had left a century-old legacy of distrust between mountain residents and city officials (a breed not commonly known for great sensitivity where its interests are concerned).

The New York State Department of Agriculture and Markets had no official role to play in the matter of watershed regulation. But a storm of resistance met the city's draft regulations, and so the Department formed a watershed agricultural task force to work with the city to review its draft regu-

lations.

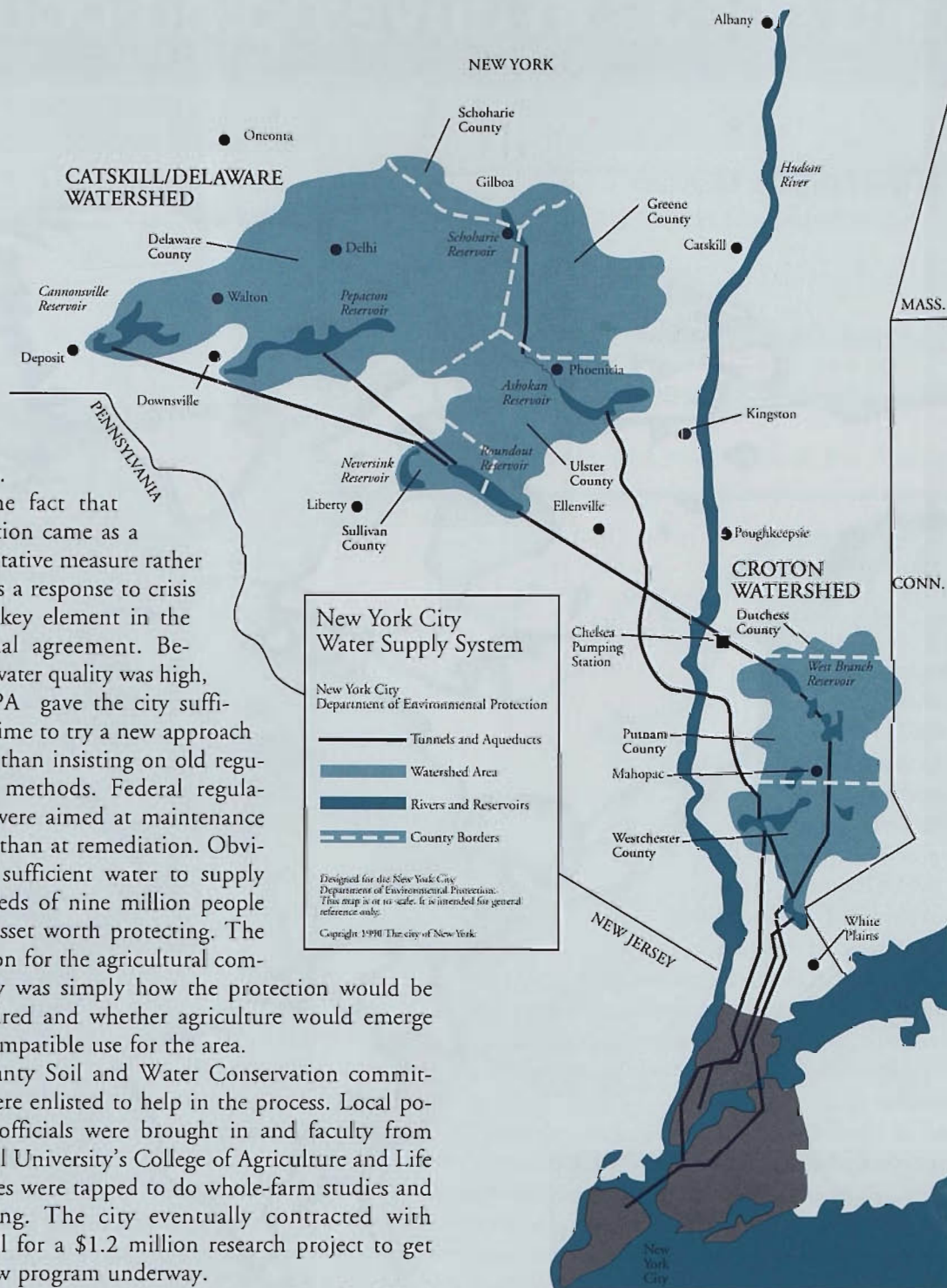
The fact that regulation came as a preventative measure rather than as a response to crisis was a key element in the eventual agreement. Because water quality was high, the EPA gave the city sufficient time to try a new approach rather than insisting on old regulatory methods. Federal regulations were aimed at maintenance rather than at remediation. Obviously, sufficient water to supply the needs of nine million people is an asset worth protecting. The question for the agricultural community was simply how the protection would be structured and whether agriculture would emerge as a compatible use for the area.

County Soil and Water Conservation committees were enlisted to help in the process. Local political officials were brought in and faculty from Cornell University's College of Agriculture and Life Sciences were tapped to do whole-farm studies and planning. The city eventually contracted with Cornell for a \$1.2 million research project to get the new program underway.

Albert Appleton, commissioner of the New York City Department of Environmental Protection—the person most responsible for what appears to be a successful solution to the effective regulation of agricultural activities in a watershed—would give a clear account of the model established in the Catskills. As Congress prepared to rewrite and reauthorize the Clean Water Act, Appleton testified before the Subcommittee on Clean Water, Fisheries, and Wildlife (of the U.S. Senate Committee on Environment and Public Works) stating the following:

“The city’s revised and enhanced watershed regulations place stringent controls on septic tank installations, stormwater and wastewater treatment plant discharges, development in environmentally-sensitive areas, the storage of petroleum and hazardous material, the use of pesticides and fertilizers, the disposal of snow, and the protection of stream corridors through vegetative buffer zones and other means.

A similar regulatory structure was considered for
(continued on page 24)





Cows in the West Branch Delaware River which feeds the Cannonsville Reservoir—part of the New York City water supply.

agriculture [emphasis added]. These proposals were met with immediate and vociferous resistance from the farm community, which claimed that the draft regulations would drive many farms out of business. After initial review, the city was satisfied that these objections, though perhaps overstated, had merit.

Recognizing that good farming techniques can both preserve land and yield economic benefit, the city, with the indispensable assistance of the Department of Agriculture and Markets as facilitator, created a watershed agricultural task force to review the city's draft watershed regulations. After a year of discussion and mutual education, the task force, which was comprised of farmers and representatives of local and city government, agreed on a watershed agriculture strategy with the following key components:

- Withdrawal of the city's draft agricultural regulations, except for provisions against willful polluters and increased pollution loading, and substitution of the regulations with a Whole Farm Planning program. Whole Farm Planning involves the analysis of pollution sources and the development of plans to implement best management practices uniquely tailored to fit each farm's topographical conditions and business practices. These activities are conducted by a county project team comprised of local farm institutions;
- Targeted city funding of the programs and best management practices, beyond any cost-sharing programs available through Soil and Water Conservation Districts;
- Voluntary participation by individual farmers, coupled with a pledge by watershed agricultural leaders that unless 85 percent farmer participation is obtained within five years, the city can reinstate agricultural regulations. The program is to be formally evaluated in 1997;
- Establishment of a Watershed Agricultural Council

representing state, city, and local government agencies, and the farm community, to monitor and assist the program;

- Development by Cornell University water quality and agricultural experts of new best management practices specifically targeted to Safe Drinking Water Act concerns, such as pathogen control.

Today, thanks to Whole Farm Planning, watershed farmers and the city are enjoying their first collaborative relationship in a hundred years. The Agricultural Council meets on a regular basis, and Phase I of the project, involving ten pilot farms and the development of a new set of best management practices to control pathogens, is well underway. City funding for Phase I totals \$3.4 million dollars.

We can share three lessons from the program to date. First, to reiterate, be firm with goals but flexible as to means. It has been the willingness of the farm community to accept the city's water quality goals that has enabled the city to allow the proposal of a locally-managed program to attain those goals. Second, local stakeholder leadership is crucial. I cannot praise strongly enough efforts of local farm leaders and the determination of the State Agriculture and Markets Department to make this program succeed and to take the real political risks necessary to realize that goal. Third, bringing together diverse stakeholders, often with conflicting interests, requires defusing rhetoric and establishing a common language. For example, farmers

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were absolutely determined that the program should be voluntary. Environmentalists and regulators believed a voluntary program would fail to produce sufficient progress. In the end, we resolved this conflict by recognizing the legitimacy of both perspectives. Thus, as described earlier, the program is voluntary but sets an overall participation goal of 85 percent that the farm community has agreed to attain."

Obviously, there are some unique factors involved in this effort, among the first in America, to regulate nonpoint source pollution: (1) the city is prepared to pay the bills for measures to implement the Whole Farm Plan, (2) the city can justify payment because the alternative to regulation of the

watershed is a monstrously expensive filtration plant, and (3) people living in the watershed are more likely to cooperate because the city has clear legal authority to regulate. However, the most unique aspect of this plan, the one which bears close study and can be applied beyond New York State, is its "voluntary" nature.

Equally important, the whole farm approach is one of the few instances where regulator and regulated sat down together to discuss needs and goals, which led to a reasonably congenial agreement on approach. It is my hope that the New York City watershed not only will succeed, but will become a model for nonpoint source control across America.

Finally, and perhaps most importantly, the changes farmers make to protect water quality may actually make their farms more profitable. This is especially true in light of the city's agreement to pay all costs of compliance with the regulations.

Three examples from the ten demonstration farms involved in the watershed clearly illustrate this point.

The Gladstone Farm is a dairy with 85 cows of milking age. The recommendations for this farm include: 40 instead of 100 acres of corn; intensive rotational grazing; better utilization of manure to reduce fertilizer purchases; diversion ditches, contour strip-cropping, etc. to control water runoff from the farm; earlier harvesting of hay crops to improve forage quality; improved management practices to improve herd health; and an increase to 105 instead of the current 85 milking cows. With full adoption of these recommendations, consultants from Cornell University estimate that net farm income will increase by over \$26,000 annually, and simultaneously reduce runoff of soil and contaminants to the city's reservoirs.

The Farber Farm is a dairy with 115 cows of milking age. This farm has high production levels, but also high labor and feed costs. The recommendations for this farm include: a nutrient management program to better use manure and reduce purchased fertilizer; an improved feeding program to reduce feed costs; a new calf-raising facility to improve herd health and reduce the threat of pathogens from calf manure; a new forestry enterprise on 800 acres of the farm's woodland; reduced water runoff; and sale of purebred livestock for additional income. When these recommendations are fully implemented, net farm income could increase by nearly \$45,000 annually.

The Hillriegel Farm is also a dairy with 36 cows of milking age. Recommendations include: control runoff from farm fields; better management of nutrients from manure; adoption of intensive grazing systems; earlier planting; weed control; and cost-effective nutrient management to increase corn

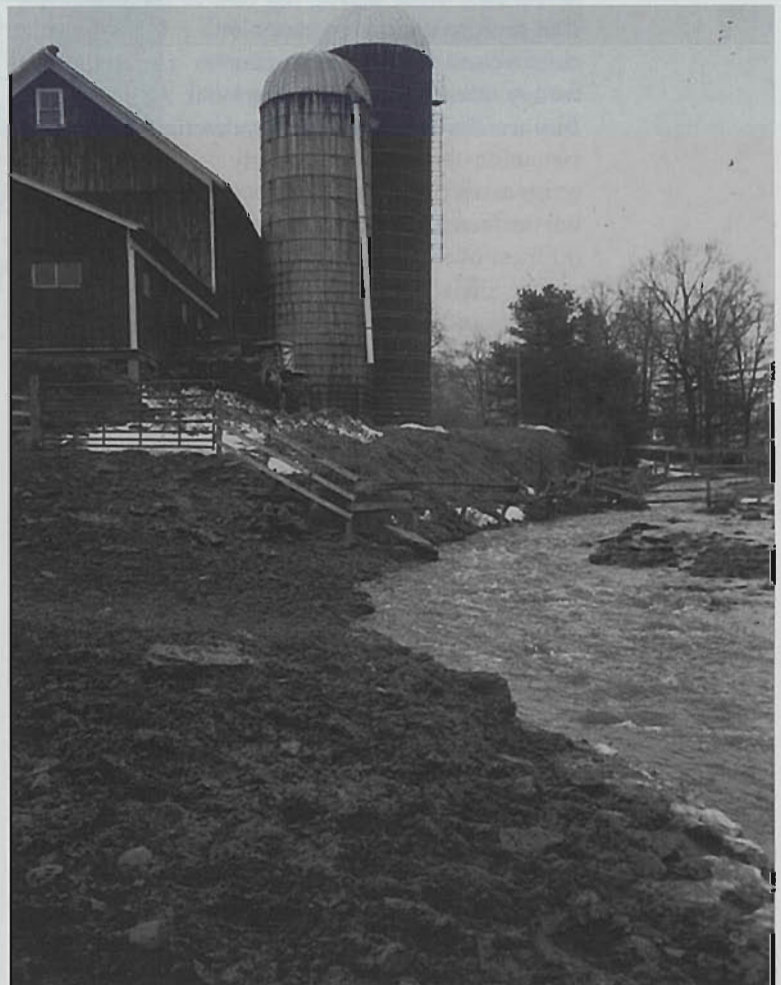
yields; and perhaps an increase in number of cows. Cornell personnel estimate that the net effect of adopting these recommendations will have little to no impact on net farm income because production costs are already very low.

These examples show that one model doesn't fit all cases. The remedies for nonpoint pollution must somehow allow for wide differences among farms. But, if the New York program works as these examples project, both farm and city goals will be met. We believe a program of voluntary water quality management, with some public support for research, education, and adaptation, is far superior to costly and probably ineffective forced regulation.

We will not know if, or how well, this effort has succeeded until 1997 when the assessment takes place. But I feel quite secure in suggesting that this is an approach which must be tried, especially where nonpoint source control is sought and agriculture is involved.

Regulations which are oppressive and expensive will discourage farming now and in the future. Cooperative efforts to achieve environmental goals may actually strengthen the agricultural infrastructure. ■

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Farmstead in close proximity to stream—typical of the New York City watershed.