



New York City's Water Supply

Part I

The question whether or not the water supply of New York should be filtered was considered in 1910, the then responsible authorities reaching the conclusion that it was not necessary to do at the time.

— Department of Water Supply, Gas and Electricity, *The Municipal Water Supply System of the City of New York* (1917).

Introduction

When George Pataki took office as the 53rd Governor of New York in January of 1995, one of the issues he inherited was the New York City water supply.

A bitter, ongoing dispute pitted the City against the seven upstate “watershed” counties where the City’s reservoirs were located. See Figure 1. In 1989, the U.S. Environmental Protection Agency had warned the City that unless it protected the 19 reservoirs from contamination flowing from surrounding lands, it would have to build several enormous water filtration plants. The cost of these plants was estimated at about \$8 billion. Seeking to avoid this expense, the City dusted off its long dormant regulatory authority over water pollution in the watersheds. Based on power granted it in 1911 by the State legislature, the City’s lawyers in 1990 wrote a draft of stringent water pollution regulations. Although addressing water pollution, the regulations effectively controlled land use in the watersheds, for example, prohibiting construction within certain distances from streams and reservoirs. When

Josh Eagle prepared this case study, under the editorial guidance of Professor Barton H. (“Buzz”) Thompson, Jr., Robert E. Paradise Professor of Natural Resources Law, Stanford Law School, solely for educational purposes rather than to illustrate either effective or ineffective handling of an environmental matter. Some or all of the characters or events may have been fictionalized for pedagogical purposes. Copyright © 1999 by the Board of Trustees of the Leland Stanford Junior University. To request permission to use or reproduce case materials, write to Environmental and Natural Resources Law and Policy Program, Stanford Law School, 559 Nathan Abbott Way, Stanford, CA 94305 or visit <http://casestudies.stanford.edu/>.

officials in the seven counties learned of the City's plans, they organized to fight. They saw the proposed regulations as unconstitutional, illegal, detrimental to economic development and an infringement upon their sovereignty.



Figure 1. New York City and the Watershed Counties.

Watershed towns and counties, as well as private landowners, filed lawsuits against the City and the State. These suits sought to prevent final adoption of the proposed regulations, or in the alternative, to force the City to pay compensation for regulatory "takings" that diminished property values. The City's position was that the 1911 law endowed it with full power to write regulations and required only that it pay for certain narrowly defined items, such as improvements of local sewage treatment plants. Under its interpretation of the 1911 law, the City was not obligated to pay for decreases in property value related to restrictions on development.

The Governor and the State were by necessity in the middle of this intramural dispute. Under the 1911 law, the State Department of Health was required to approve any water pollution regulations promulgated by the City. The Department of Health was also co-responsible, along with the U.S. EPA, for enforcing the Safe Water Drinking Act in New York. And given the high cost of the looming filtration plants, it was very likely that the State would have to pay a significant part of the cost of constructing those plants. The State's demographics added a further twist: more than half the population lived in New York City.

Pataki's first step was to appoint Michael Finnegan, a trusted advisor, as Counsel to the Governor on this issue. Finnegan, like Pataki, was from a watershed town. Although he had specialized for some time in legal issues relating to public finance, real estate, and the environment, Finnegan knew that before he began tackling the drinking water problem, he would have to familiarize himself with both the history of the water system and the applicable laws.

As a staff attorney working for Finnegan, your job is to prepare a summary of the relevant law and facts. Finnegan wants your opinion on the different ways that the problem might be solved. Are the proposed watershed regulations the best solution to the water quality problem? Or, should the City simply build filtration plants? If the imposition of regulations is preferable to building filtration plants, what concessions should the City make to the watershed counties, who will have to bear the burden of the new regulations? Could the regulations be part of a package solution, which includes some form of compensation or financial aid to the watershed counties? What forms could this compensation take, and who should pay for it? In order to have an idea of where to begin negotiations, Finnegan will need to know the extent to which the City would be legally obligated, under State law, to pay for the impact of its proposed regulations. Finally, Finnegan is curious about the best structure for the negotiations. What role should the State play in resolving the problem? Who should be involved in the negotiations? Should they be open to the public, or confidential?

In the library, there are tomes on the history of the New York City water supply. There are volumes of Federal, State and municipal codes. You begin to review the materials.

The Creation of the Water Supply System

You quickly realize that the scale of the current water supply system is remarkable. The water begins its journey as it drains from three discrete watersheds - the Croton, Catskill and Delaware - whose cumulated area is about 2,000 square miles. See Figure 2. (By contrast, the watersheds supplying Portland, Oregon and Seattle, Washington total together less than 250 square miles.) The water from the three New York watersheds drains into and then is stored in 19 reservoirs (13 in the Croton watershed, three in the Catskill and three in the Delaware) with a total storage capacity of 550 billion gallons. The water system serves nine million people, eight million in the City and one million in surrounding counties.

The infrastructure of reservoirs and aqueducts that supplies this water to the users was constructed in three steps: Croton, Catskill and then Delaware. Construction of the Croton "project" began in 1837. The Croton system was operational by 1842, but was expanded with the addition of more reservoirs and aqueducts over the next 60 years. The Catskill project was built between 1906 and 1929 and tripled the capacity of the system. The present system was nearly completed with the construction of the Delaware project between 1937 and 1948. When the City finished building the Cannonsville Reservoir in the Delaware watershed in 1965, the infrastructure of the current system was complete.

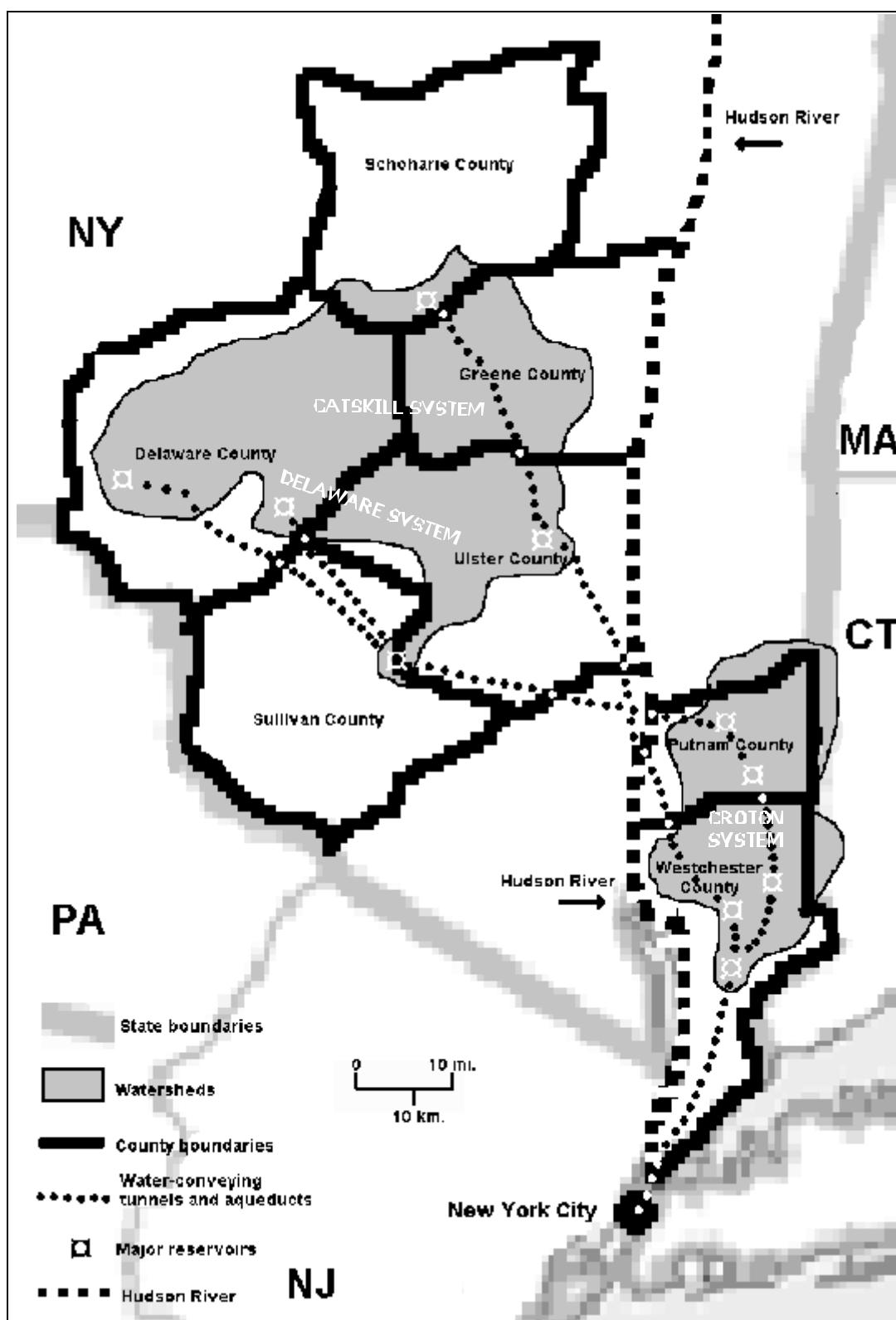


Figure 2. New York City's Water Supply System, *circa* 1995.

As you read more about the history of the system, you realize that the history is relevant for several reasons. First, the story of the three projects provides a background necessary for understanding the current state of relations between the City and the watershed counties and between the City and the State. Second, in many cases, the enabling legislation that accompanied each project is still pertinent to the current issues. Third, the way in which the watershed counties changed over time is a direct cause of the City's current predicament. Finally, it is interesting to note that the connection between watershed degradation and water quality is not a modern revelation. The story reveals a long-held awareness of this not very opaque truth, and what seem to be continuous efforts to circumvent reckoning.

Each of the three projects consisted of six phases: (1) recognition of a need for more water; (2) identification of a practical and affordable source of water; (3) passage of enabling legislation by the State legislature; (4) acquisition of upstate land for reservoirs and other infrastructure; (5) construction of infrastructure; and, (6) maintenance of infrastructure.

Rather than recreating 150 years of history for Finnegan, you decide to summarize just the history of the first part of the system: the Croton project. In your view, this project captures the important aspects of water supply history that must be kept in mind in trying to solve the current dilemma.

The History of the Croton System

Recognition of Need

The problem of providing healthy drinking water to the City dates to the late 1700's. There seems to be a recurring pattern. A water source, away from the population center of the City, is identified. As the City grows, the area near the water source becomes more populated. The water source becomes polluted, and new sources must be sought out. In the 1700's, the water supply of the City consisted of wells in upper Manhattan. "As the population of the city increased [in the 1700's], the well-water became much polluted by organic matter and insufficient in quantity. This was especially the case in the densely populated districts." Edward Wegmann, *The Water-Supply of the City of New York, 1658-1895* (1896). The City was continually forced to look further north for a cleaner supply.

During the summer of 1832, one of every 60 New York City residents died of cholera. By August, more than half the City's population had fled to the hinterlands in fear. The epidemic renewed the City's concern about the safety and adequacy of its water supply, a topic that had been publicly discussed since the mid-eighteenth century.

In order to study the problem and its potential solutions, the City's Joint Council of the Common Council on Fire and Water applied in 1833 to the State Legislature for the appointment of five Water

Commissioners, “who should be invested with full power to examine the plans hitherto proposed, to cause actual surveys to be made, to have the water tested, to estimate the probable expense, and generally to do whatever in their judgment may be necessary to arrive at a right conclusion in the premises.” The Legislature appropriated \$5,000 and gave the newly-formed Water Commission one year to complete its work.

Identification of a Source

The Commission eventually narrowed the decision to two choices. The first was a system of 42 mechanically-operated wells that would be drilled in Manhattan. This option was quickly dismissed, due to concerns over the external costs of such a system:

“Now if we were satisfied (which we are not) that by the operation of boring, a sufficient supply of water could be obtained, in each of the wards, to employ these *forty-two* steam-engines in filling as many reservoirs with good water, and that the expense would not exceed the bringing it in from a distance, a strong objection would still arise to placing *forty-two* steam-engines in the densely settled parts of the city, to annoy and disturb a neighborhood with the unceasing noise and clatter of the machinery, the constant smoke of the furnaces and the incessant discharge of the steam; thus depreciating the value of property for a distance around, and driving from their vicinity every citizen whose means would permit him to seek for more peaceful and comfortable quarters.”

The second possibility was to bring water from the Croton River to the City. The City would build a dam on the river; water from the resulting reservoir would be transported to the City by way of an aqueduct. In the event that demand for water later increased, more dams and reservoirs could be built on the river. (See Figure 3.)

The Commissioners chose to pursue this option based on “the certainty that all the water on Manhattan Island would become eventually more or less polluted by the extension of the city . . .” Wegmann, p. 31.

Passage of Enabling Legislation

The City would need to acquire land for the reservoir and the aqueduct to transport the water to the City. On May 2, 1834, the State Legislature passed a law “to provide for supplying the City of New York with pure and wholesome water.” The legislation gave the City the power to condemn both real property (the land under and around the reservoir and aqueduct) and water rights, as necessary to complete the Croton project. The City’s condemnation power was full and required little in the way of process. According to White, “it [was] only necessary [for the City] to file maps showing the land required.” The amount of compensation to landowners would be determined by a newly-formed

Commission, consisting of three members, two from upstate and one from the City.



Figure 3. Croton system, circa 1995.

Acquisition of Upstate Land

Construction on the Old Croton dam and aqueduct began in May of 1837. The delay between the passage of the enabling law and the beginning of construction was due primarily to opposition to the project by landowners in Westchester County.

Westchester landowners, whose land the City sought to condemn, protested to the State Legislature. They submitted a list of proposals for modifying the enabling law:

1st. That the legal possession and use of the land bought by the city of New York for the construction of the aqueduct should remain with the original owners.

2^d. That any land not used for the purposes of the aqueduct should revert to the original owners.

3^d. That the persons through whose land the aqueduct passed should have the right to use the water by paying a reasonable compensation.

4th. That some provision should be made to prevent trespassing on the land near the aqueduct.

5th. That all appraisements should be made by the judges of the county courts, instead of by the Commissioners

Wegmann, p. 36-7.

The Legislature refused to take any action on most of these proposals. It did, however, pass a second law granting some minor concessions, for example, requiring the City to create convenient passes across or under the aqueduct so that landowners could walk from one side of their property to the other. Later, the Legislature conceded on the third proposal, allowing watershed townships to buy water from the system at the same rate that City residents paid. (By 1995, only Westchester County had taken significant advantage of this opportunity, with about half its residents using water from the City system. The other counties found it cheaper to use water from other sources.)

The landowners were not mollified, and threatened at a public hearing to file suit challenging the constitutionality of the State's transfer of condemnation power to the City.

Although there is no record of whether such a suit was ever filed, it is clear that the landowners did not succeed in stopping the Croton project. The histories of the project indicate that no landowners sold land to the City voluntarily. All of the necessary land was acquired by condemnation. The valuation proceedings were consistently contentious, with City attorneys casting the landowners as greedy people seeking to take advantage of the City's desperate need for water and landowners claiming the City was out to take their land at a fraction of its real value. There appears to be some truth in both of these claims.

The process of acquiring the necessary land proceeded bitterly. On March 7, 1837, the Westchester Herald decried the invasion of “the historic manor of Cortlandt and county of Westchester . . . Good citizens should be left, free from such intrusion or disseizin, peaceably to enjoy, retain, or dispose of their respective real estates and property . . .” In his *New York Water Works Narrative*, Stephen Allen relates that City surveying crews were harrassed, verbally assaulted, physically attacked, and regularly denied access to property.

Construction of Infrastructure

The construction of the dam and the aqueduct, once underway, was delayed by funding shortfalls and labor unrest. Workers struck several times, demanding higher wages. The militia was called out to restore order. In April of 1840, the State Legislature authorized the City to borrow an additional \$3,000,000 so that the project could continue.

Work on the aqueduct was completed in June of 1842, and by the end of the month, water had begun to fill the storage reservoir in midtown Manhattan. The Croton project was viewed by people of the City as a glorious triumph of imagination and engineering:

The introduction of a copious supply of pure water from the Croton River into New York, an event of the utmost importance for the welfare of the city, was celebrated by the citizens on October 14, 1842, by a grand military and civic procession and by other appropriate festivities. New York had seldom witnessed a finer celebration.

At the request of the Corporation of the City of New York, George P. Morris wrote for the occasion an ode which was sung by the members of the New York Sacred Music Society in front of the fountain in the City Hall Park.

Wegmann, p. 46.

Maintenance of the Infrastructure

During the next 60 years, the City could spare little time or money to worry about maintaining the original Croton Dam and aqueduct, or the lands around them. Instead, it focused almost exclusively on planning and constructing new reservoirs and aqueducts to meet the burgeoning need for water. Between 1820 and 1900 the population of New York City increased from 202,589 to 1,850,093. In 1830, each New York resident used 22 gallons of water per day. By 1850, daily *per capita* use had increased to 90 gallons per day, and by 1900, to 100.

In 1862, work was completed on a one billion gallon reservoir in Central Park. By 1880, seven

other upstate reservoirs had been added to store Croton water, an expansion which required extensive condemnation of privately-held land. In the 1880's, work began on a new, larger Croton Dam, and on a new, larger Croton Aqueduct.

The City's attempt to control water waste was limited to the installation of water meters in "all stores, workshops, hotels, manufactories, public edifices, at wharves, ferry-houses, stables, and in all public places in which water is furnished, except private dwellings." Wegmann, p. 105. The majority of buildings in the City did not receive meters, and paid a flat rate of water based on street frontage. By 1905, waste amounted to more than half of supply.

"Instead of making an all-out effort to control consumption, both engineers and the city's officials . . . concentrated on the idea of solving the problem by extending the system of supply," writes Charles Weidner in *Water for a City* (1974).

By 1900, the City began to seek out sources of water beyond the Croton watershed. The two counties in the watershed, Putnam and Westchester, had changed since the 1840's, attracting more and more residential and agricultural land uses. The increase in population seems to have had two effects: first, the counties gained in political power, of great use in combating the City's further expansion efforts in the State Legislature; second, the increased density rendered protection of water quality more urgent.

When the Old Croton reservoir and aqueduct were constructed (1837-42), the Croton watershed was sparsely inhabited. There were small farms and crossroad clusters of shops and dwellings in the narrow river valleys; but the higher land - rock ridges generally devoid of good earth and often a jumble of immense glacial boulders - was for the most part uninhabited. A few migrants from the city, however, had begun to buy land in Westchester and Putnam counties on which to build mansions or unpretentious dwellings and places of business.

The population of this early suburbia kept pace with that of its parent metropolis. A half century later . . . when the State Board of Health made a survey of the area, it was estimated that 20,000 people were living in the watershed draining into Croton Lake (the Old Croton Reservoir). Cows, horses, sheep, and hogs in the area numbered 12,243.

Out of concern that this influx of people and livestock might contaminate the water supply, the State Legislature in 1885 passed a law empowering the State Board of Health to write regulations "to protect from contamination . . . the water supplies of the state and their sources."

It is unclear from the law exactly what types of water pollution concerned the legislature. The

threats to water quality in 1885 were probably very similar to those faced by the system in 1995.¹ A growing population means more human waste, discharged both directly into watercourse and into the ground where it can percolate into nearby streams and reservoirs. Sewage contains bacteria that can cause severe illness and death. In addition, construction of homes and roads decreases the amount of naturally vegetated surface area. During storms, water runs quickly over impermeable surfaces, picking up oil, chemicals and particles and transporting them into the water supply. Other human activities, such as agriculture and industry, introduce a large amount of pollutants, such as animal waste, fertilizers pesticides, and herbicides into the watersheds. These substances fall into two categories: toxics, which can cause illness to those who drink the contaminated water; and, nutrients, which can cause algae blooms in the reservoirs. Algae blooms decrease water quality by reducing its oxygen content. All of these problems are directly proportional to increases in population density near reservoirs or streams leading into reservoirs.

Development leads not only to more effluents, but to degradation of the land and its capacity for natural filtration. Construction of homes and roads decreases the amount of vegetated surface area. During storms, water runs quickly over impermeable surfaces, picking up oil, chemicals and particles and transporting them into the water supply. Water flows more slowly through naturally vegetated areas, where it tends to be absorbed and slowly filtered by the soil and vegetation.

After an 1888 survey, the State Board of Health issued its first set of rules and regulations. It appears from the histories that these regulations were largely ignored.

Much of the pollution . . . was the result of carelessness or ignorance; but a great deal of it resulted from purposeful, almost retaliatory, indifference. Many of the people in the area resented what they were inclined to consider the arrogance of New York City as it continued to acquire more and more of the best valley land and to evict lifelong residents.

In March 1893, the Legislature passed the Webster Act, an “Act to provide for the sanitary protection of the sources of water supply of the City of New York.” This act gave the [City’s] Department of Public Works the authority to condemn and acquire [to the extent necessary to protect the water supply] lands adjacent to any stream, pond, or reservoir used for the city’s water supply.

Weidner, p. 98.

Soon thereafter, the City embarked on a campaign to clean up areas near streams and

¹Obviously, there were more types of chemical pollutants in 1995. Awareness of the health threats posed by water pollution was also greater.

reservoirs, using the threat of condemnation to force landowner compliance with the State Board of Health regulations.

Excerpts from this June 7, 1893 letter from the City's chief engineer to the Aqueduct Commission illustrates the early efforts to control the pollution problem:

At Katonah [Westchester County], where many nuisances were concentrated in a single spot, all direct objectionable drainage into the river has been stopped and a large number of privies have been removed and been replaced by water-tight masonry structures.

Generally the work to be done has consisted in removing out of harm's way privies, piles of manure and other nuisances; in the cleaning, removal, rebuilding or emptying after proper cleaning, of privies, house drainage, manure heaps, hen-houses, hog-pens, stables, barns and other buildings.

In addition, and in view of the expected flowage of lands for reservoirs which are now under construction, over 150 buildings, including seven mills, one tannery, one slaughter-house, were sold and removed.

Surveys have also been made for the condemnation of 33 additional estates situated on the lands to be flooded or in close proximity to the water line of reservoirs, all of which contain buildings the drainage of which would have become a permanent nuisance, but in all cases the present causes of pollution have been removed.

Weidner describes the watershed residents' reaction to the enforcement measures:

Westchester and Putnam County residents bitterly resented this action. They considered it an outrageous act on the part of New York City. The antagonism the city had already aroused among these people by acquiring land, evicting old residents, and bringing in strangers - many of them "foreigners" - to build dams, was intensified.

The haste of the cleanup, especially, incited bad feelings. The city's men, in their role of authority, were inclined to be impatient and frequently arrogant because the property owners had failed to do the job themselves - and in numerous instances resisted having others do it for them. The property owners, on the other hand, resented this invasion by outsiders who seemed bent on enforcing unreasonable, frequently senseless demands.

Weidner, p. 100.

At the same time the cleanup was proceeding, the City was debating issues related to the construction of the “final” piece of the Croton system - the Jerome Park Reservoir in the Bronx.

As it was finally constructed, the Jerome Park Reservoir consisted of a single basin covering about 90 acres with a capacity of 773 million gallons. During its construction, which was prolonged over an extremely long period, the question of what to do about the pollution of Croton had become a paramount issue. Several plans for filtering the city’s water supply were proposed.

Weidner, p. 103.

These plans were never brought to fruition, as the City instead turned its attention to a new project aimed at bringing larger quantities of less polluted water from a more remote source: the Catskill project.

The Catskill and Delaware Projects

The two projects that followed after the Croton project went through nearly identical phases. Work on the Catskill project began in 1905 and ended in the mid-1930's. The Delaware project began in the 1940's and was completed in the mid-1960's. See Figure 4.

There are two features of these projects that are important for the purposes of solving the 1995 dilemma. First, during the early years of the Catskill project, in 1911, the State legislature significantly amended the Webster Act.

The 1911 amendments to the 1893 Webster Act, now known as Article 11, §§1100 - 1105 of the Public Health Law, gave the City new power. A current version of Public Health Law provisions related to watershed regulation is attached to this case as Exhibit A. Whereas previous versions of the law had allowed only the State Board of Health to write water pollution regulations for the watershed, the 1911 law for the first time ceded this authority to the City.² Although any regulations issued by the City had to be approved by the State Board of Health, the 1911 law was viewed by both the City and the watershed counties as investing the City with a significant amount of power.

The City’s obligations under the Public Health Law are very relevant as well. The law requires the City to pay for certain improvements in sewerage systems mandated by its watershed regulations.

²The right to issue regulations was eventually transferred from the commissioner of water supply, gas and electricity for the city of New York to the New York City Department of Environmental Protection.



Figure 4. Catskill and Delaware systems, *circa* 1995.

In addition, the law contains a provision requiring the City to pay landowners compensation for the “injurious[”] effects of regulations on property. Public Health Law, §1104(3). The City and landowners

currently interpret the word “regulations” in this provision differently. The City believes that the provision applies only to regulations that require “the removal of any building or buildings,” while upstate landowners believe it applies to any and all watershed regulations promulgated by the City. *See* Public Health Law, §1104(2).

This law was a significant departure from the long history of “home rule” in New York State. Grounded in the state constitution, home rule generally provides that cities and townships are to retain regulatory power over inherently local matters. N.Y. Const. of 1924, art. XII, 2.

The second relevant feature of the Catskill and Delaware projects is that the land acquisition for the two projects was at least as acrimonious as it had been for the Croton project. This continued strife kept the emotional chasm between the City and the watershed counties well open into the 1990’s.

Weidner (p. 228) describes the land condemnation in the Lower Esopus Valley (Catskill

project):

Most of the people who lived in the valley had roots deep in its soil and loved it. Many were descended from its earliest settlers, who began to take up land there in the 1740's. They were farmers whose wives kept summer boarders as a source of additional income, small business people, quarrymen, lumbermen, and men with a trade or profession. Their way of life explains their attachment to their homes and places of business - all of which were wiped out in six years.

Perhaps because of the controversy surrounding the land acquisitions, the City rarely utilized the power given it by the Public Health law in the 1900s. Pursuant to its authority, the City had issued the first written regulations governing land use in the watersheds in 1917 and then amended them in 1953. It is fairly clear, though, that the City did not expend a great deal of money on enforcing the regulations or even monitoring the potential threats to water quality.

According to Robert F. Kennedy, Jr., chief prosecuting attorney for the Riverkeeper, Inc., an environmental group that focuses on water quality throughout the New York area, there was an “absolute vacuum” of anti-pollution enforcement by the City between 1900 and 1990. According to Bill Harding, former supervisor of the Town of Somers (Westchester County, see Figure 3), “we never once saw a City person The City was in the business of purveying water to 9,000,000 people; it was not in the business of protecting the watershed.”

Even if the City had tried to enforce its regulations, it is doubtful that they would have contained all of the threats to the water quality. The 1917 and 1953 regulations were very brief and, as Kennedy calls them, “archaic,” regulating only a limited number of point-sources of pollution such as privies, dead animals and cemeteries. A copy of the 1953 regulations is attached as Exhibit B. As Kennedy notes, they did not address “the threat of modern toxins and the very transformation of the Watershed from forest or meadow to suburb.”

Changes in the Watersheds

By 1990, the watersheds encompassed sixty towns, one city, and eleven incorporated villages. These residents required services in the form of 128,000 septic tanks, hundreds of miles of roadways, and 100 local sewage treatment plants. More pollution was being created in the watersheds, and there were fewer naturally vegetated areas which might help buffer the water supply.

All of the watershed counties experienced population growth between World War II and the 1990's. Between 1940 and 1990, the total population in the watershed counties increased 62%. Most of this growth occurred in the Croton counties of Westchester and Putnam, primarily due to the area's close proximity to the City. Many of the new residents were commuters who worked in the City. By 1995, 337,000 people lived in the Croton watershed (a 39% increase from 1970) and 122,000 in the

Catskill and Delaware watersheds (an increase of 13%).

Despite the increases in population, most – 21 of 38 – of the Catskill and Delaware local governments did not have comprehensive land use plans or zoning ordinances in place in 1995. And none of the existing plans or ordinances incorporated provisions requiring that development take into account potential degradation of the water supply system.

On the other hand, towns in Croton had begun to regulate land use in the 1980's. Faced with changing “community character,” Bill Harding recalls that Westchester residents began to feel that “building was getting out of hand.” When Harding was elected to lead the Somers’ government in 1987, he placed environmental protection at the top of his agenda. In the following years, Somers passed legislation regulating the destruction or modification of wetlands, construction on steep slopes, historic preservation and vista preservation.

By 1995, 90% of the City’s water came from the Catskill and Delaware projects. While only four towns in Ulster County and eight towns in Putnam County took water out of the City system, 54 towns in Westchester (50% of its residents) used City water. This last fact meant that Westchester found itself in the odd position of being both a supplier and a consumer of City water. While some Westchester residents opposed regulations that would hinder land uses, others were concerned about water quality and continued low water rates. Some residents welcomed greater regulation of growth and development; others, particularly those with undeveloped property, feared it.

The Safe Drinking Water Act and the Surface Water Treatment Rule

Originally passed in 1974, the Safe Drinking Water Act was significantly amended by Congress in 1986. 42 U.S.C. §1411 *et seq.* The purpose of the law is to ensure that citizens served by public drinking water systems have safe, healthy water.

Under the SDWA, responsibility for protecting the nation’s drinking water is split between the federal government and the various states. The EPA is responsible for setting certain standards; the states are permitted to apply to EPA to take over enforcement responsibility for SWDA implementation. The state must demonstrate it has a plan of implementation and enforcement. EPA must first approve this so-called “primacy package” before it can cede responsibility to the state.

Prior to 1986, the SDWA gave the EPA great discretion as to the establishment of standards. An important part of the 1986 amendments was a new mandate to EPA to set firm standards for drinking water quality. Like the old standards, the new standards required that public water systems meet contaminant levels “at which no known or anticipated adverse effects on the health of persons occur and which allows an adequate margin for safety.” 42 U.S.C. §1412(b)(4).

However, the 1986 amendments additionally required EPA to:

propose and promulgate national primary drinking water regulations specifying criteria under which filtration (including coagulation and sedimentation, as appropriate) is required as a treatment technique for public water systems supplied by surface water sources. In promulgating such rules, the Administrator shall consider the quality of source waters, protection afforded by watershed management, treatment practices (such as disinfection and length of water storage) and other factors relevant to protection of health.

42 U.S.C. §1412(7)(C)(I).

The SDWA requires that, following promulgation of these regulations by EPA, the states have 18 months to adopt conforming regulations and additional 12 months in which to decide which systems within their respective jurisdictions require filtration. If the state finds that systems require filtration, filtration facilities must be installed within 18 months of the date of the finding.

In 1989, the EPA adopted the Surface Water Treatment Rule, a copy of which is attached as Exhibit C. The SWTR contained several objective requirements with respect to maximum levels of contaminants. In addition, it contained the following provision:

The public water system must demonstrate through ownership and/or written agreements with landowners within the watershed that it can control all human activities which may have an adverse impact on the microbiological quality of the source water. The public water system must submit an annual report to the State that identifies any special concerns about the watershed and how they are being handled; describes activities in the watershed that affect water quality; and projects what adverse activities are expected to occur in the future and describes how the public water system expects to address them.

42 C.F.R. §141.71(b)(2)(iii).

New York Confronts the SWTR

In order to avoid filtering its water, the City had to drastically revise its 1953 watershed land use regulations. The City had to prove to the State and the EPA that its watershed regulations allowed it to the “control all human activities which may have an adverse impact on the microbiological quality of the source water.”

The alternative was filtration, which appears to be a bad option for several reasons. It is no surprise that City officials, according to Bill Harding, often referred to it as “the ‘F’ word.” First, filtration would be extremely expensive. The estimated capital cost of filtration for the water system was \$6 to 8 billion. In addition, City water users would have to pay approximately \$300 million annually for

operating and maintaining the filtration plants. These costs would drive water prices sharply higher; it was estimated that the increase in water rates (from \$350 to \$700/family/year) would drive 50,000 City residents out of the City.

Second, it is not clear that filtration alone can secure safe drinking water for the City. According to the EPA, a combination of filtration and chemical disinfection³ are effective in removing “99.9% of *Giardia* cysts and 99.99 % of enteric viruses.” Such effectiveness, however, requires careful maintenance and supervision of filtration operations. And, as Robert Kennedy points out, filtration does not solve the problem of nitrate runoff from farming operations or “toxic chemicals from household cleaners, paints, gasoline, pesticides and fertilizers which are dumped down toilets or washed off the street and into the City water supply.”

Hilary Meltzer, an attorney in the Environmental Law Division of the City’s Law Department, points out that filtration “does not take care of aesthetic qualities of drinking water, such as taste, odor and color.” More important, she notes, all of the recent, major disease outbreaks traced to public water systems occurred in filtered systems. For example, in 1994, 100 people died after drinking contaminated, though filtered, water in Milwaukee, Wisconsin.

In 1989, pursuant to a stipulation with EPA that allowed it to temporarily delay construction of a filtration system, the City began to work on a new set of watershed regulations. In September of 1990, the City issued a draft of proposed regulations intended to convince the State Department of Health to grant a Filtration Avoidance Determination (“FAD”). (The City asked Department of Health for the FAD because it assumed the State had already been granted “primacy” by the EPA with respect to SWTR implementation.) A copy of parts of these proposed regulations is attached as Exhibit D.

After an extended period of private negotiations, DOH and the City agreed that these regulations would be sufficient if the City also acquired significant amounts of undeveloped land by condemnation and hired more personnel to police the watershed and prosecute polluters. DOH was prepared to issue a final FAD if the City met all of these requirements. The City agreed that it would aim for these goals, and in January 1993 DOH issued a conditional FAD, requiring the City to acquire land, enact the regulations and increase its enforcement personnel before the issuance of a permanent

³Disinfection, achieved with the addition of chlorine and other chemicals to the water, is effective against some microorganisms and viruses, but can also create dangerous by-products such as trihalomethanes. The City had been adding chlorine, fluoride and several other chemicals to its water for some time.

Viruses and bacteria, such as *Giardia lamblia* and *Cryptosporidium*, can cause severe illness and even death in especially sensitive people, such as the elderly, young people and those with immunodeficiencies.

FAD. The conditional FAD would expire by the end of 1993.

Even though the conditional FAD gave the City some breathing room, there were also some events that made City officials nervous. The outside possibility that the final FAD would require filtration had not yet been eliminated entirely.

The level of fear increased with the issuance, in early 1993, of an EPA-commissioned expert report on the water supply system. In 1992, EPA had commissioned a “blue ribbon panel” of public health experts and asked them to make recommendations on protecting the New York water supply. The panel’s final report emphasized that the presence of *giardia* and *cryptosporidium* in the water supply were the primary potential health threats and that these bacteriological threats could only be addressed by filtering the water. The report concluded that while bacteria levels in the water supply were currently not a danger, filtration would eventually be necessary. The panel recommended that the City should begin filtering its water supply immediately. Although it felt that it had a good argument against these conclusions, *i.e.*, that there was no foreseeable danger to water users, the report clearly made City officials nervous. See Exhibit E, April 19 letter from DEP Commissioner Albert Appleton to U.S. EPA.

In the fall of 1993, as part of its application for a final FAD, the City proposed specific land acquisitions and issued another set of draft regulations, not very different from the 1990 version. The City’s renewed effort revived opposition from the watershed counties. George Rodenhausen, the attorney for Putnam County, recalls that he was retained in 1993 by the county government to formulate a litigation strategy. Rodenhausen was able to dissuade county legislators from filing suit, counseling them to instead begin negotiations with the City.

Watershed residents were vehemently opposed to the regulations for several reasons. For one thing, they felt as though the City was intruding on local affairs and violating the principles of sovereignty inherent in the concept of home rule. Land use and zoning are traditionally governed by local ordinance, not by unilateral edict of a city some one hundred miles away. Second, some watershed communities saw these restrictions as a threat to further economic development. For example, Putnam County estimated that the regulations, if enacted, would prevent any construction on more than 80% of land otherwise suitable for development.

While the first concern was universal, the second was not. Westchester County, for example, was already densely populated; some residents (not developers, though) had been expressing concern about overdevelopment for some time. In addition, as previously noted, about half of Westchester residents were served by the City’s water system. Westchester also boasted the highest *per capita* income level in the state. Finally, because all the City’s water passed through Westchester before reaching the City, it was the most likely location for filtration plants. These would be large, probably unattractive facilities. For all these reasons, Westchester was generally more supportive of the City’s proposed regulations than Putnam or other other upstate counties.

In Putnam County, only about 10% of residents drank City water, relying instead on local systems or wells. In addition, Putnam County was the fastest growing county in New York. Rodenhausen recalls that at the time the regulations were proposed, the county was “in the middle of a building boom.” There were differing views of the regulations within the county. Newer landowners and developers strongly opposed them, while long-time residents tended to be less vehement. According to Rodenhausen, the two primary concerns in Putnam were related to the potential “chill in development” and the effect of the regulations on the county’s tax base. The county was concerned that the City would take significant amounts of land for which it would not be liable for property tax. The “chill on development” would primarily result from provisions in the regulations restricting the construction of new wastewater treatment plants. These restrictions indirectly limited the number of new homes that could be built.

The “west of Hudson” counties – Delaware, Greene, Ulster, Sullivan and Schoharie – were the most offended by the proposed regulations. For these areas, the regulations placed significant new restrictions on the two most important economic activities: construction (by virtue of the restrictions on construction of new treatment plants) and farming (new and strict regulations on the use of chemicals and on the discharge of effluents). After reviewing the proposed regulations, the counties and majority of towns within the counties formed the “Coalition of Watershed Towns” (“CWT”). One of the first acts of CWT was to obtain a \$100,000 funding appropriation from the State Legislature for organizational expenses. As Finnegan described it, “we had the amazing circumstance of state tax dollars being used to defeat a proposal advanced by the City to protect the drinking water of two-thirds of the state’s residents.”

Some of this money was spent on legal fees incurred in bringing suit over the regulations. CWT filed several cases, challenging the constitutionality of the proposed regulations and seeking a court order requiring the City to pay for the economic impact of the regulations pursuant to Public Health Law §1104 and 1105. CWT also filed suit on the grounds that DOH had no right to grant a FAD, since the EPA had not yet ceded primacy to the State for SWTR implementation. In addition to CWT, numerous watershed landowners filed suits against the City, seeking monetary damages on two separate grounds. First, that they were entitled to compensation under the Public Health Law; and second, that the regulations effected a constitutional taking of property by the State that entitled landowners to compensation.

Eventually, in response to the CWT litigation, DOH withdrew its conditional FAD, acknowledging that it had never gained the authority from EPA to issue it in the first place. It was clear that the compensation litigation would have prevented the City from acquiring the necessary land or enacting the regulations before the expiration of the conditional FAD. As a result of the withdrawal of the FAD, the City was forced to (1) deal directly with EPA (which, unlike the State, would not bear any of the costs of constructing filtration plants), and (2) face the increased likelihood that filtration would be required.

In order to forestall this result, the City in 1994 initiated a series of private discussions with CWT and the watershed counties aimed at gaining concurrence on some form of regulations and some plan of land acquisition. These talks, however, quickly reached a standoff. In November of 1994, Mario Cuomo lost the gubernatorial election to George Pataki. In the "lame duck" period, the City made a last ditch effort to have the new regulations approved by DOH. Needless to say, this attempt was not received well by CWT or the watershed counties. When Pataki took office in early 1995, there was still a long way to go.

Case Study Exhibits

- Exhibit A. New York State Public Health Law, Sections 1100, 1104 and 1105.
- Exhibit B. 1953 Watershed Regulations
- Exhibit C. Surface Water Treatment Rule
- Exhibit D. Excerpts from 1990 draft Watershed Regulations
- Exhibit E. April 19, 1993 Letter from DEP to U.S. EPA