

**THE TECHNICAL FIX OR THE SYSTEMIC SOLUTION FOR
URBAN WATER QUALITY?
A CASE STUDY OF GRASSROOTS ACTIVISM ON BEHALF OF
NEW YORK CITY'S DRINKING WATER**

by

MIRELE B. GOLDSMITH

A dissertation submitted to the Graduate Faculty in Psychology
in partial fulfillment of the requirements for the degree of Doctor of Philosophy,
The City University of New York

2006

UMI Number: 3232016

Copyright 2006 by
Goldsmith, Mirele B.

All rights reserved.

UMI[®]

UMI Microform 3232016

Copyright 2006 by ProQuest Information and Learning Company.
All rights reserved. This microform edition is protected against
unauthorized copying under Title 17, United States Code.

ProQuest Information and Learning Company
300 North Zeeb Road
P.O. Box 1346
Ann Arbor, MI 48106-1346

©2006
MIRELE B. GOLDSMITH
All Rights Reserved

This manuscript has been read and accepted for the
Graduate Faculty in Psychology
in satisfaction of the dissertation requirements for the degree of Doctor of Philosophy.

Date Dr. Cindi Katz, Chair of Examining Committee

Date Dr. Joseph Glick, Executive Officer

Dr. Dolores Greenberg
Dr. William Kornblum
Dr. John Seley
Dr. Joel Tickner

Supervisory Committee

THE CITY UNIVERSITY OF NEW YORK

Abstract

THE TECHNICAL FIX OR THE SYSTEMIC SOLUTION FOR URBAN
WATER QUALITY?
A CASE STUDY OF GRASSROOTS ACTIVISM ON BEHALF OF
NEW YORK CITY'S DRINKING WATER

by

Mirele B. Goldsmith

Adviser: Dr. Cindi Katz

This case study examines the activities of the Croton Watershed Clean Water Coalition from 1996 until 2004. The Coalition opposed construction of a filtration plant for the Croton water supply. The study traces the Coalition's campaign against filtration, which took place in the context of the widely heralded New York City Watershed Memorandum of Agreement (1997). Although the Agreement permitted New York City to avoid filtration for its Catskill and Delaware water supplies, plans were laid for filtration of the Croton supply.

My study is informed by political ecology which provides a framework for understanding politics, practices and contradictions involved in natural resource management. The arguments of the Coalition reflected the precautionary principle, which is applied to the question of water filtration for the first time in this dissertation. The filtration issue and the Coalition's strategy are analyzed in terms of theories concerning the production of scale and the influences of scale on the outcome of the controversy. The Coalition was an unusual grassroots effort to engage urban water consumers and suburban residents within the watershed area on behalf of watershed

protection. Place-based organizations from the two areas made up the Coalition and struggled to balance protection of their own local places with protection of the entire watershed.

My research illustrates the role that grassroots organizations can play in reframing environmental policy issues. As a grassroots organization, the Coalition was part of an explosion of grassroots anti-toxics, environmental justice and watershed organizations that emerged in recent decades. In contrast to the bureaucratized and professionalized environmental organizations that also were concerned with the New York City water system, the Coalition was free to reframe policy questions and challenge prior decisions. Its unique role is explained by the fact that it was not constrained by prior relationships and commitments. However, it faced significant limitations on its ability to influence the policy controversy. This study provides insights into the nature of environmental problems, emerging responses to these problems, and the political obstacles to turning new approaches into policies.

**To Rick,
Thank you**

Contents

LIST OF ILLUSTRATIONS	X
CHAPTER 1: THE TECHNICAL FIX OR THE SYSTEMIC SOLUTION FOR URBAN WATER QUALITY?	1
Introduction.....	1
Background.....	5
Literature Review	17
Political Ecology.....	18
The Politics of Scale	26
Urban Water Supply	30
Environmental Justice.....	36
Citizen Participation in Environmental Policy-making	42
Research Questions.....	46
Methodology	47
Plan of the Dissertation	52
CHAPTER 2: WHAT IS WRONG WITH FILTRATION? THE SIGNIFICANCE OF FILTRATION AS AN ENVIRONMENTAL POLICY CHOICE	56
The Setting.....	63
Sources of Water Pollution in the Croton Watershed.....	68
New York City’s Policy on Filtration for the Croton Water Supply – Should the Croton be Filtered?.....	72
The New York City Watershed Memorandum of Agreement - The Croton Watershed in the Context of the Entire Water System.....	77
Regulations Announced.....	78
East of Hudson and the New York City Watershed Memorandum of Agreement.....	79
Results of the Negotiations	81
Role of New York State and Governor George Pataki	83
Croton Coalition View of the New York City Watershed MOA.....	86
Croton Watershed Used by New York City Department of Environmental Protection as a Bargaining Chip	95
Effect of the New York City Watershed MOA	98
The Croton Coalition’s Environmental Argument Against Filtration	98
Filtration and the Precautionary Principle	103
The Hard Path and the Soft Path for Water	109

Conclusion	113
CHAPTER 3: THE CROTON WATERSHED CLEAN WATER COALITION - GRASSROOTS VOICES AND AGENCY	116
Introduction.....	116
First Turning Point - Joining Forces.....	121
Second Turning Point –A Hoodwinked Neighborhood.....	134
Inch by Inch - Protecting the Watershed.....	150
Third Turning Point – Diverging Interests (the Alum Proposal).....	164
Fourth Turning Point – The Walkout.....	176
Fifth Turning Point – Divide and Conquer	186
Conclusion	195
CHAPTER 4: THE CROTON COALITION’S ROLE IN THE FILTRATION CONTROVERSY	200
Introduction.....	200
National Environmental Organizations.....	203
Sierra Club	207
Natural Resources Defense Council (NRDC).....	209
Grassroots Anti-toxics and Environmental Justice Movements	214
Watershed Movement.....	221
Riverkeeper.....	224
Conclusion	228
CHAPTER 5: GRASSROOTS CONTRIBUTIONS TO A SUSTAINABLE URBAN FUTURE	232
Reframing of Filtration	233
Unique Role of Grassroots Activism	235
Scale as a Tool of Analysis.....	237
Place-based and Coalition Activism.....	241

Changing Policy	245
The Future of the New York City Water System.....	250
Looking Ahead	254
APPENDIX I: CHRONOLOGY OF THE CROTON FILTRATION CONTROVERSY	257
APPENDIX II: LIST OF INTERVIEWS	262
APPENDIX III: LIST OF ACRONYMS AND ABBREVIATIONS.....	265
APPENDIX IV: DEFINITIONS OF WATERSHED AND FILTRATION	267
Watershed	267
Water Filtration.....	268
REFERENCES	270

Illustrations

1. Map of the New York City Water Supply System	8
2. Map of the Croton Watershed	9
3. Marian Rose, President of the Croton Watershed Clean Water Coalition	58
4. Map of the Northwest Bronx	71
5. Sleeping DEP	89
6. Faucets	102
7. Ann Fanizzi, Croton Watershed Clean Water Coalition	129
8. Paul Moskowitz, Croton Watershed Clean Water Coalition	130
9. Fay Muir and Marian Rose, Croton Watershed Clean Water Coalition	144
10. David Ferguson, Croton Watershed Clean Water Coalition	146
11. Cover of Croton Watershed Clean Water Newsletter, <i>Our Water, Our Future</i>	158
12. Illustration of the Proposed Croton Water Treatment Plant from <i>The Monster From the DEP</i>	175
13. Bloomberg's Filter	188

Chapter 1: The Technical Fix or the Systemic Solution for Urban Water Quality?

Introduction

As of 2004, New York City was one of only ten large cities in the United States that were permitted by the federal government to avoid filtration of their water supplies (Pires, 2004). New York City negotiated an agreement with the United States Environmental Protection Agency (US EPA) that allowed it to be exempted from requirements to filter water obtained from the Catskill and Delaware watersheds. This agreement was touted by New York City as an example of enlightened fiscal and environmental policy. Yet at the same time New York City was pursuing a very expensive and controversial plan to implement filtration for water obtained from the Croton watershed. Opposition to this plan came almost exclusively from grassroots activists, led by the Croton Watershed Clean Water Coalition (Croton Coalition), an unusual alliance of urban water consumers and suburban watershed residents. My dissertation research examines the Coalition and its activities to explore the role that grassroots activism plays in promoting new environmental policies. I explore the experiences, activities and practices of the Croton Coalition during the period between 1996 and 2004, when it championed watershed protection and pollution prevention as an alternative to filtration. My research highlights how the Croton Coalition's policy proposals contrasted with that of established environmental organizations, as well as with that of government agencies. I also address the obstacles that the Coalition faced from

within and without: From within, as a coalition of place-based organizations. And from without, as a small grassroots effort that aimed to reframe a complex, multi-dimensional policy issue in opposition to multiple government agencies and powerful special interests engaged in the water sector.

Despite advances in knowledge about the hydrologic cycle and the risks posed by the pollution of water supplies, municipal water treatment has changed little since the 1920's. Decisions about technology made over 100 years ago are rarely challenged and few alternative technologies are given serious consideration. Agencies responsible for water supply have favored the "technical fix," such as water filtration, over "systemic fixes" such as prevention of pollution in the first place (Rogers,1996). What has been called by Peter Gleick (2002) the "hard path" in water -- centralized decision-making that controls similarly centralized infrastructure that delivers water only of one quality -- remains the accepted paradigm. The competing "soft path" paradigm -- decentralized infrastructure, efficient technology, meeting different needs with water of varying qualities, consideration of ecological health and complexity, and investments in human as well as financial capital -- is beginning to be considered in some places but is rarely taken seriously in the major cities of the United States.

Although the importance of water in urban life may seem self-evident, the public often pays little attention to questions of water supply policy. In industrialized/developed cities with well-developed infrastructure, extensive service and low cost for water, citizens may take clean water for granted. In fact concerns have been raised that, counter-intuitively, public interest in, and support of, city water systems may even be diminishing as citizen fears about the safety of municipal water increase. If this is so, and

the evidence is primarily found in the skyrocketing sales of bottled water, it may become even more difficult to engage citizens in the issues of municipal water supplies (Gleick, 2004).

As in other areas of public service provision of critical importance to industry and connected to urban growth, the process of determining water policy tends to take place away from the public eye and to be controlled by special interest groups with privileged access. Business as usual in the water sector is a tightly controlled policy-making process concerned mostly with urban growth and other development. Regulatory agencies and water industry players tend to hold similar perspectives on water management issues. Non-traditional perspectives, such as the environmental perspective, are often excluded because they are not brought to the table or because of entrenched interests.

Cities are currently faced with a number of serious water policy challenges. The United States Environmental Protection Agency (US EPA) has estimated that by 2019 the accumulated gap between actual and needed investments in water and sewer systems in the United States will be \$650 billion (Revkin, 2002). Partly in response to these costs, but also in response to even more powerful social and economic factors, many cities are considering new privatized arrangements for financing and providing water supplies. Efforts to control threats from contaminants in the water supply (some of which have been only recently discovered) add to the cost pressures on cities. New regulations and requirements are one result of these efforts to control the quality of water. Additional new regulations and regulatory bodies also result from the complexity of privatization and other changes in the way water systems are financed and managed, as governments seek means to provide oversight for new private management.

Although New York City has one of the oldest and largest water systems in the United States, little scholarly attention has been paid to the process of water policy-making there. Overall, water policy in the West of the United States has received far more attention than similar topics in the East. More attention is focused on the social, political and economic problems of water in cities in developing countries than in industrial/developed countries. This study demonstrates that although developed countries have more infrastructure and financial resources, the process of water policy-making is fraught with environmental and social challenges, and as such, deserves our attention. In examining these challenges and the responses to them through a case study of the controversy about filtration of the Croton water supply, this research contributes to the policy debate about the future management of New York City's water resources, and by extension to the literature on water policy concerns and practices more broadly.

Background

As early as the colonial period, residents could no longer drink water procured within New York City and tapped water sources in other areas of Manhattan. The search for water sources outside New York City eventually resulted in the construction of reservoirs and an aqueduct, completed in 1842, to bring water from the Croton River north of New York to urban residents. The history of the decision to build, and the construction of, the Croton Aqueduct is chronicled by Koeppe (2000). Other accounts of the early history of the system include Weidner (1974) who addresses the period from 1897-1966 and Goldman (1997) who addresses the politics of building New York's sewers in the 19th century.

Within 40 years the Croton system, expected to provide enough water for generations, became inadequate. Seeking larger quantities of water, New York City made plans to tap watersheds even farther away. In 1927 the City completed the Catskill system and in 1965 it completed the Delaware system (together referred to as the "West of Hudson" or WOH system in contrast to the Croton, "East of Hudson" or EOH system). All three systems required the displacement of upstate communities for the construction of reservoirs. Under normal conditions, approximately 90% of the water used daily in New York City at the start of the 21st century came from the West of Hudson system.

Today the New York City water system draws from a total watershed area of 1,969 square miles – approximately the size of Delaware. This is the area commonly known as the New York City Watershed; it is a human construction which does not include the Hudson River or other areas that for other purposes might be defined as part of the natural catchment area of the water courses that supply New York City with water.

The water collection and distribution system includes eighteen reservoirs and three controlled lakes with a combined capacity of 550 billion gallons of water; three aqueducts and seven tunnels; a distribution network of over 6,000 miles of water mains. This system is complemented by a wastewater treatment system, which includes fourteen treatment plants and associated facilities (New York City Municipal Water Finance Authority, 2001; NYC DEP, April 2001). The history of this expansion is recounted in Galusha (1999), which covers the period of expansion to the Catskill and Delaware, describing the engineering and construction challenges and the displacement of upstate communities.

At this point it may be helpful to clarify terms. The term watershed refers to the land that drains into a watercourse. Watersheds are also called catchments or drainage basins. The boundary between two watersheds is called the divide. This is an area of high land from which water flows in different directions. Every small stream has a watershed, and as a tributary stream joins a larger stream or river, its watershed is joined to the watershed of the larger stream. Thus watersheds are nested within each other. The watershed of the tiniest stream is located within that of a larger stream and then an even larger river. The increasingly smaller units within a watershed are sometimes referred to as sub-watersheds. Any human activity that is defined as being related to a watershed must specify the area under consideration (Allaby, 1998; Griffin, 1999; Pielou, 1998). In this dissertation, I use the definitions established by the New York City Department of Environmental Protection to refer to the New York City watershed and the areas within it. The Department uses the term New York City watershed to describe the entire area from which it collects water to be used to supply New York City. This area is divided

between the West of Hudson watershed, which includes the Catskill and Delaware watersheds, and the East of Hudson watershed, which is also called the Croton watershed. It should be noted that these areas, as the Department defines them, do not correspond to the watershed of any natural stream or river. Thus, although much of the land included in the New York City watershed drains into the Hudson River, the New York City watershed is not identical with the Hudson River watershed.

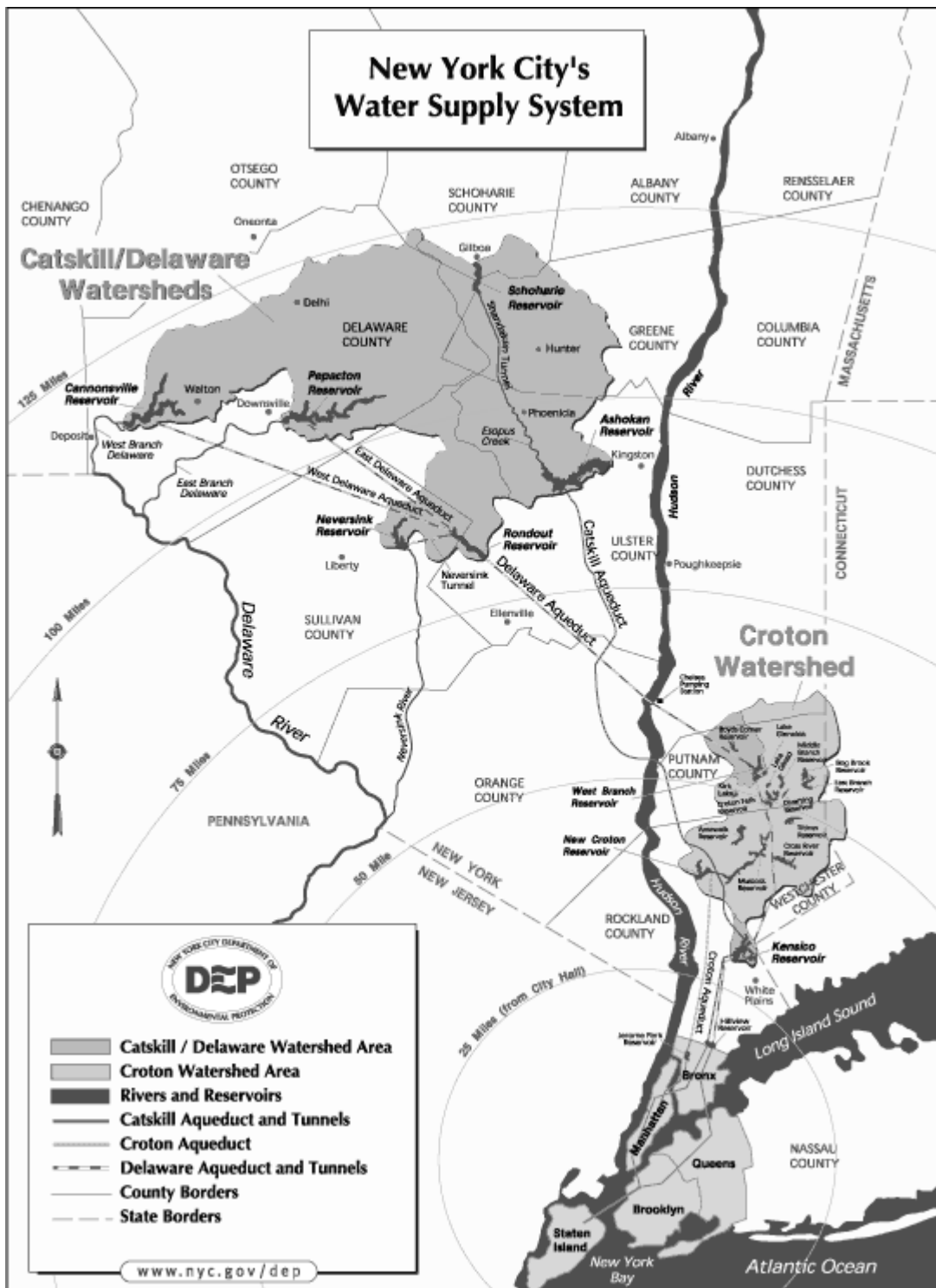


Illustration 1
Map of the New York City Water Supply System.
Available:
<http://www.nyc.gov/html/dep/html/wsmaps.html>

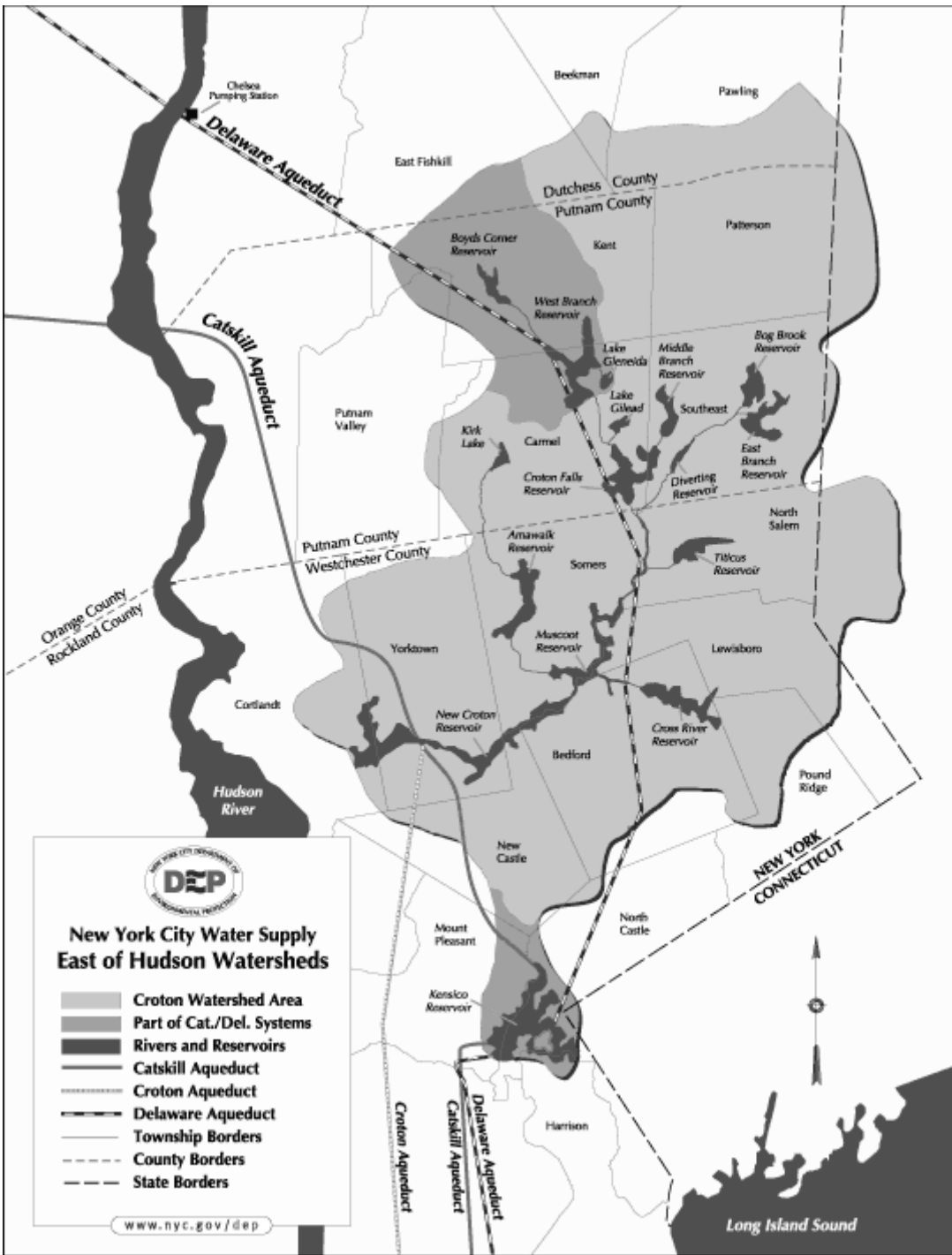


Illustration 2
Map of the Croton Watershed.
Available:
<http://www.nyc.gov/html/dep/html/croton.html>

The New York City Department of Environmental Protection, which manages the water system, is responsible to multiple regulatory authorities including the United States Environmental Protection Agency (US EPA), the New York State Department of Health, and the Delaware River Basin Commission (created in 1961 by the states of New Jersey, Pennsylvania, Delaware and New York to manage the water flows in the Delaware watershed). In 1984 two new public authorities were established with responsibilities for the water system. These authorities were the New York City Water Board and the Water Finance Authority. Since 1984 New York City has leased the water system to the New York City Water Board, which determines and collects the fees for water and sewer services. The Water Finance Authority issues bonds for capital investment in the water system. These authorities were established primarily to enable New York City to borrow funds at lower cost, however they also serve to insulate the budget of the water system from the electoral process. In 1996 then Mayor Rudolph Giuliani proposed completing the transfer of the municipal water system to the New York City Water Board by actually selling it to the Board for 2.3 billion dollars. The sale was to be financed by bonds issued by the Water Board and would have appeared in the budget as income which would reduce New York City's budget gap. The City Comptroller, Alan Hevesi, refused to approve the sale, which was purely fictional since the buyer would have been another New York City government entity. The Comptroller's position was upheld in court (Hennely, 1996).

The Safe Drinking Water Act Amendments, passed in 1986 by the US Congress in response to national concerns about increasing outbreaks of water borne diseases, had important repercussions for New York City. Regulations established by the US EPA under this Act required that all surface water supplied to large cities be filtered, unless the cities could prove that they could adequately protect water quality in other ways.

Filtration refers to the process of allowing water to pass through layers of porous material in order to remove suspended particles. This process mimics the way in which water is naturally filtered by seeping through layers of earth. The original filtration plants were constructed to allow water to seep slowly through layers of sand of progressively finer grade. Rapid gravity filtration is faster and takes up less space. Filtration is only one step in water treatment. Water treatment plants may use a number of different processes. These processes include preliminary screening to remove large particles. Smaller particles may be removed with the help of chemicals such as alum (aluminum sulphate) through the coagulation and flocculation process. The chemicals and particles are then removed through coagulation and flocculation. The chemicals are then removed through sedimentation or other means. Water may also be disinfected with chlorine, chlorine dioxide, chloramines or ozone. Although disinfection of water was a major health advance when it was first introduced, concerns have been raised about disinfection because it may result in harmful by-products. Ultraviolet irradiation (UV) and membrane filtration are newer methods of water treatment (Stauffer, 1996). Wastewater and residuals from the treatment process must then be disposed of.

The regulations established by the US EPA prompted New York City to propose new watershed protection regulations to be applied in the watershed communities in

1990. The communities in the Catskill and Delaware watersheds, which resented this intrusion into their affairs, formed the Coalition of Watershed Towns, filed lawsuits against New York City and forced the City to negotiate with their Coalition over the proposed regulations. They were joined by the communities in the Croton watershed, which were represented in the negotiations by Westchester and Putnam Counties. The contentious negotiations over the watershed regulations drew on a history of conflict between New York City and the upstate communities. Upstate residents clearly recalled the communities displaced by the construction of the Delaware system, completed as recently as 1965. Residents feared that restrictive land use regulations would further depress the economy of their already poor region.

The negotiations between New York City and the watershed communities resulted in the New York City Watershed Memorandum of Agreement (MOA), which established the context within which the controversy over filtration of the Croton water supply took place. In 1997, following the intervention of New York State Governor George Pataki, the agreement was signed by New York City, New York State, the communities in New York City's watershed, the US EPA and several environmental organizations, including Hudson Riverkeeper, the Trust for Public Land and NYPIRG. The MOA required the City to cede powers, including the power of eminent domain, formerly granted to it by the State, to the watershed communities. New York City agreed to spend hundreds of millions of dollars on projects in the watershed. These included projects specifically related to watershed protection such as upgrades of sewage treatment plants and development of plans to prevent polluted runoff from farms, as well as projects to support economic development that is compatible with watershed protection (NYC DEP, 2001).

As part of the New York City Watershed MOA, the US EPA allowed New York City to defer filtration of water from the Catskill/Delaware system until 2002. The agreement stipulated that if water quality could be maintained and future quality insured, this supply would be exempted from the Federal mandate to filter. Social scientists have paid limited attention to these important developments, with most of the focus on the response of the watershed communities. A recent dissertation by Stave (1998) addresses the resistance of communities in the Catskill Mountain Region to the proposal of new watershed protection measures from 1990 to 1995, finding that important factors were residents' conceptions about their communities and landscape, as well as about urban stakeholders. Wagenet, et al. (1999) and Stycos, et al. (1999) and their colleagues have also studied the response of watershed communities to public education about water protection measures. Pires (2004) examines the politics surrounding the needed changes in land use policy, and Pfeffer (2002) examines the conflicting values about land use that emerge as rural and urban residents are both affected by the same water system. Houser (2003) is currently investigating the reasons for the deterioration of water quality in the Croton watershed.

Although the New York City Watershed MOA provided New York City with an opportunity to avoid the financial and political costs associated with filtering the water from the West of Hudson system, the City did not pursue a waiver for the Croton supply. The reasons for this omission are multiple, and are explored in this research. There were long-standing plans to filter the Croton supply and New York City was also more concerned about avoiding filtration for the West of Hudson system, which is much larger and supplies a much greater share of the City's water, than about insuring the quality of

water in the Croton system. The Croton watershed has a much larger population than the Catskill and Delaware watersheds, and the more extensive, and increasing, development taking place there is associated with threats to water quality. Avoiding filtration would necessarily require curbs on development, and this provokes controversy. Plans for construction of a filtration plant for the Croton supply also became controversial and moved ahead in fits and starts, slowed partly as a result of opposition in the neighborhoods selected as locations for the plant. These processes and issues are the focus of my research.

Beginning in 1997 a small grassroots coalition known as the Croton Watershed Clean Water Coalition (the Croton Coalition) worked to prevent the construction of a filtration plant and to encourage New York City to protect the Croton watershed rather than initiating filtration of the water supply. Despite the history of conflict between New York City and the watershed communities, the Croton Coalition included both New York City organizations and watershed community organizations among its members. The member organizations were also diverse in their areas of focus, including community development organizations, low-income housing associations, environmental organizations, and local community organizations concerned with stopping sprawl and preserving open space. The Croton Coalition united these organizations from the urban Bronx and suburban Westchester and Putnam counties around the position that the natural filtering capacities of the watershed should be actively protected by New York City and that no filtration plant should be constructed anywhere. Although the Croton Coalition activists did not use the term, in essence the Coalition advocated for application

of the precautionary principle to the initiation of filtration for the Croton waters supply. The activities of the Croton Coalition form the core of this research.

The formation of the Croton Coalition highlighted the changing regional dynamic in urban use of water. Urban and suburban interests that are typically at odds, or ignorant of one another's existence and concerns, joined together in the Croton Coalition to oppose filtration. The groups that made up the Coalition framed the filtration issue in different ways, including as an environmental, environmental-justice, tax equity, or anti-growth issue. There were tensions between the various groups, and over the course of the research most of the urban groups left the Coalition. Exploring the motivations of the Coalition activists led me to interpret their organization as an alliance between place-based groups, which may be situated within the explosion of such grassroots environmental groups that took place during the last decades of the twentieth century.

The Croton Coalition favored protection of the natural capacity of soil and wetlands to filter water that is polluted by non-point sources such as road runoff. This could be accomplished using the same strategies New York City was currently employing in the West of Hudson watershed, such as land purchases, sewer plant upgrades and regulations to protect buffer zones. The Coalition also researched alternative purification techniques (ozone and chlorine dioxide) that could supplement chlorination (the current technique) since the EPA required two techniques be used to ensure water quality.

In contrast to the Croton Coalition's position, the New York City government and the US EPA pursued filtration of water from the Croton watershed on its way to the New York City at a centralized plant. Although New York City claimed that it was pursuing a "multi-barrier approach" that included both watershed protection and filtration, the

Coalition argued that it was doing almost nothing to protect the watershed while plans for the construction of a filtration plant continued to move forward.

Key New York City environmental organizations that monitored, or at least occasionally attended to, the water system were divided over the issue of filtration for the Croton supply. Their involvement provided an opportunity to examine how the Croton filtration controversy challenged traditional conceptions of environmental politics, and how and why grassroots organizations take different positions from established environmental organizations. Sierra Club volunteer leaders were active in the founding of the Croton Coalition and led the Club to take an active position against filtration. On the other hand, the Natural Resources Defense Council (NRDC), supported by Environmental Defense and the New York League of Conservation Voters, provided timely support for the New York City Department of Environmental Protection's (NYC DEP) position that filtration of the Croton water supply was necessary (Johnson, New York Times, May 23, 2003). Riverkeeper, another key organization because of its active role opposing development in the Croton watershed, chose not to take a strong stand either way.

In its efforts to derail plans for the filtration plant and to champion aggressive watershed protection for the Croton watershed, the Croton Coalition confronted a confusing array of governmental actors, including the New York City, New York State and two county governments and their various regulatory agencies, as well as the federal US EPA. They also confronted the influence of business interests. These included real estate developers who play an important role since land use decisions are so critical to watershed protection. Construction firms looked forward to contracts for construction of

the filtration plant and found a common interest with construction unions. This research explores how and why the Coalition developed its position, the results of its advocacy efforts and the implications that the policy alternatives in the filtration controversy had for New York City and the watershed region. The study of the Croton Coalition's role in the controversy provides an entry point for gaining an understanding of New York's hydro-social cycle and, more broadly, the challenge of incorporating emerging environmental approaches into urban water management.

Literature Review

Scholars interested in the social, cultural and economic aspects of water supply may turn to literature in many disciplines including environmental history, cultural anthropology, political economy and resource management. The complexity and interdisciplinary nature of the issues involved in water supply call for an integrative framework for analyzing human-environment interactions. I chose to use the framework of political ecology, associated mainly with geography, in this study because I sought to understand the politics, practices and contradictions involved in natural resource management. Political ecology offered a framework that was well-suited to the study of the New York City water system because of its emphasis on the region as a unit of analysis and on political economy as it affects particular ecologies, as well as its emphasis on the agency of social actors in their interaction with the environment. My research also built on work about the politics of scale, environmental justice, citizen participation in environmental policy-making, and the history and politics of urban water supply to develop an understanding of the possibilities and pitfalls of grassroots activism to influence New York City's water policy.

Political Ecology

Political ecology evolved from efforts to link cultural ecology with political economy. Cultural ecology is a school of anthropology that focuses on the dynamic role of cultural practices in regulating people's interactions with their physical environments. This approach tends to be place-based, at the scale of individual communities or tribes, while focusing attention on the adaptation of people to their physical environments. Its limitation is in seeming to ignore the influence of political and economic forces at larger scales. Political economy, with its focus on the connection between politics and economics, provides a corrective to the narrow focus of cultural ecology by taking colonialism and the global economy into account in explaining local developments. Political ecology has also been informed by a renewed interest in Marxism by political economists who concentrate attention on how inequality affects the workings of markets and results in injustice. It is "explicitly normative, focused on the intersection of multiple forms of marginality and vulnerability," and critical of dominant approaches to environmental problems that may ignore these issues (McCarthy, 2005, p. 955). The political ecology framework has been adopted and influenced by geographers, environmental sociologists, and natural resource sociologists. (For particularly helpful reviews, see by Belsky, 2002; Paulson, Gezon & Watts, 2005.)

The political ecology approach is predicated on the awareness that nature and society are completely intertwined and that their relationship is political, economic and cultural. Nature and society influence each other continually, resulting in environmental practices and landscapes that we experience as natural although they are produced through this dynamic process. A major question is how certain relationships between

people and nature result in environmental degradation and social injustice, while other relationships produce these outcomes less commonly. Political ecology looks for answers to this question in the history of politics and economics, paying much attention to the transformations wrought by capitalism as nature has been commodified under this system (Swyngedouw, 1999; Smith, 1996; Castree, 1995), as well as other modes of oppression, domination and exploitation.

Blaikie and Brookfield's (1987) influential book, *Land Degradation and Society*, laid out a framework for regional political ecology that was adopted by a number of researchers focusing on the causes of environmental degradation associated with development projects in rural areas. These researchers examine the long term consequences of various factors and decisions that change the patterns of interaction between people and their environments, resulting in environmental degradation. Hecht and Cockburn (1989) examine the causes of deforestation in Amazonia. Grossman (1998) explores the influence of contract farming in the Eastern Caribbean. A recent example is Gardner's (2005) exploration of the response of Bedouin to rangeland degradation in Saudi Arabia and the relationship of this degradation to a series of factors including the burning of the Kuwaiti oilfields during the Gulf War.

Reflecting the roots of political ecology in cultural ecology, studies guided by this framework generally take a "ground up" approach beginning with resource users such as farmers or fishers. Discourse analysis may be used to uncover how different people and groups vary in their perceptions of the sources and dimensions of problems (Peet and Watts, 1996; Zimmerer, 1996). The concept of scale plays an important role in developing an understanding of the influences on behavior, as the investigator seeks to

uncover relevant political and economic forces and practices at different scales. The investigator seeks to identify how these forces affect people and the landscapes in which they live and work, and how people, communities and social organizations respond to these forces and in turn alter and affect these landscapes. (The concept of scale will be treated more fully below.)

Recent works in political ecology emphasize the need for sensitivity to questions of agency in political ecology. The term agency refers to the power of people to resist and to change their circumstances in the face of structural forces. An important aspect of agency, and often the first step toward resistance, is defining and reframing problems to reflect your own perspective. Pulido (1996), in a case study of the United Farm Workers' (UFW), emphasizes how the political and economic position of farmworkers led to their definition of pesticide use as a problem and to their strategy for addressing it. Pulido's account reveals how the farmworkers connected the issue of pesticide use with the struggle for power of workers to protect themselves from oppression by growers. She points out that prior to the farmworkers' campaign in 1965-71, the growers, and even environmentalists, did not see the use of pesticides in agriculture as a concern. At first the growers dismissed it, claiming that the farmworkers raised the issue of pesticides merely to harass them. Similarly, the Croton Coalition as a grassroots group outside of the circle of organizations that generally influenced policy decisions about New York City's water, developed a novel perspective on the problem of water quality.

It is particularly important to understand the potential for agency on the part of relatively powerless or subaltern people (Bennett, 1995; Miller, Hallstein & Quass and other contributions in Rocheleau, Thomas-Slater & Wangari, 1996). However, the

current case raises questions about the obstacles faced by varied groups of people – even those who are relatively powerful - in influencing environmental policy. Because of New York City’s expansive “water footprint,” its water policy affects low-income inner city residents, wealthy suburbanites, rural dwellers and farmers far from the city limits, among others.

It is frequently noted that in the past cities have been neglected both by environmentalists and by scholars interested in environmental questions (Mertig, Dunlap & Morrison, 2002). Political ecology is no exception. As we have seen, the political ecology framework has been most widely used to address human-environment interactions in rural settings. Reflecting political ecology’s roots in cultural ecology, early studies focused on land managers such as agriculturalists or collectors of forest products in their relationship to natural resources. Later, scholars began to use the political ecology approach to explore questions about human-environment interactions in urban settings (Bru-Bistuer, 1996; Miller, Hallstein & Quass, 1996; Kaika, 1999; Smith, 2001; Gandy, 2002; Williams, 2001). Political ecology has also been influenced by analyses of urbanization in works such as *Nature’s Metropolis* (Cronon, 1991) and *City of Quartz* (Davis, 1990), that highlight the dynamic of capitalism as it has influenced cities and their regions and reconstructed the landscapes of city and country in tandem (Swyngedouw & Kaika 1997).

Studies in industrialized countries and in cities have broadened the scope of phenomena chosen for investigation guided by the framework of political ecology. Researchers examine how different groups with different relationships to, and needs for, resources find these relationships affected by power and by larger political and economic

frameworks. (For a recent example, see the June 2005 theme issue of *Environment and Planning A*, edited by James McCarthy.) So while early studies tended to examine local production practices and their effect on the environment, studies in new locales have led scholars to use similar methods to examine consumption practices, working backwards to understand their influence on power relationships and landscapes (Keil et al., 1998; Steinberg & Clark, 1999; Heyman, 2005). These studies provide a useful corrective to the early focus on poverty as the proximal cause of environmental deterioration, providing balance with intimate study of the influence of affluence that was previously treated as a structural factor (Peet & Watts eds., 1996). Globalization has necessitated the study of the interrelationships of widely separated urban and rural communities. Katz (2004) explores the social reproduction of livelihood strategies by contrasting the effects on children of a development program that introduced irrigated agriculture to a Sudanese village, and children in Harlem in New York City. Urban protest movements, such as those in opposition to the North River Sewage Treatment Plant in New York City (Miller, Hallstein, & Quass, 1996) and the response to waste disposal facilities in Spain (Bru-Bistuer, 1996), have provided another topic of study.

Moving more specifically to the treatment of urban water issues, in an overview of political ecology as applied to urban water systems, Swyngedouw, Kaika and Castro (2001) demonstrate that the perspective of political ecology is highly relevant to the study of urban water supply by highlighting themes such as the co-determination of environmental and social change, the uneven effects of such change on various social groups, and how power relationships shape such changes. Swyngedouw and his colleagues are producing a body of work that explores several key issues in urban water

supply. These include the production of nature through the urbanization process; the commodification of water; the current shift toward privatization and the relationship of this shift to regulation; and water supplies as a factor in the sustainability of cities.

Regarding the first theme, the production of nature, Kaika and Swyngedouw (2000) explore the creation of urban environments and how movements for modernization were explicitly linked to the engineering of water supplies. As conceptions of modernity changed, the infrastructure of water became invisible. Their analysis helps to explain how nature in the city and the routes through which we draw on ecosystem services such as water, although all around us, escapes notice (also see Swyngedouw & Kaika, 1997; Swyngedouw, 1999). Kaika (1999) and Bakker (1999) address the discourse of water scarcity and how political and economic programs are sold to the public as being necessitated by crises that are constructed as natural disasters. Even in New York City, with its generous water resources, fear of drought plays an important role in justifying decisions about increasing water supply capacity. The current research reveals that one of the arguments for introduction of filtration was that with filtration, it would be possible to use lower quality water, thus maximizing the quantity of water that could be drawn from the Croton water system.

In relation to the second theme, commodification, privatization and regulation, Bakker (1998) describes and analyzes the shift toward privatization of water in England and Wales, highlighting some of the contradictions inherent in programs to commodify water, and the resistance of consumers/citizens to the commodification of this necessity of life. While New York has so far avoided privatization of its water system, it has

adopted some of the priorities and techniques of privatization. However citizens are unaware of the long-term implications of these changes.

These two themes, the production of nature and the implications of commodification of water, are taken up by Gandy (2002) in his wide-ranging book about New York City. Gandy uses the water system as a case study to illuminate the politics of the relationship between the city and nature. Gandy describes how the construction of New York's water system was emblematic of a vision of modern, urban society and was carried out to further urban growth and the expansion of capitalism. Now there is an "aura of uncertainty" (p. 18) that contrasts with the celebration of technology and the perception of total control of nature in the service of the city that reigned in the previous period. The water system is threatened by the reduced investment in cities and the reduced power of the city in relation to its region. In an era characterized by the mobility of capital we can expect disdain for the materiality of physical infrastructure and neglect of the fixed capital of the water system. Gandy's conclusion is that as an inherently collective service, that must be maintained in an era of emphasis on individual rights and privatization, the future of the water system may depend very much on democratic participation. This conclusion is supported by the current investigation of the unique role played by the grassroots activists of the Croton Coalition in the filtration controversy.

The theme of the sustainability of urban water supplies is explored by Kaika (1999) in her study of the relationship between nature and urbanism in Athens. She describes the expanding, and likely unsustainable, use of water that has accompanied the urbanization process in that city. One facet of this process of expansion is the effect that it has on people in the supplier regions. Many histories of such expansion have stressed

what Steinberg and Clark (1999) call the “critical water resource narrative” which emphasizes confrontation and domination of rural areas by the more powerful urban exploiter. Steinberg and Clark studied the residents of the area surrounding the Wachusett Reservoir that provides water to the Boston Metropolitan area and found attitudes similar to those that I heard expressed by the suburban residents that participated in the Croton Coalition. Residents in their study generally supported active management by the metropolitan water agency, recognizing that the agency’s actions prevented development and provided them with recreational benefits. Steinberg and Clark find that the “critical water resource narrative” is too simplistic. They demonstrate that the relationship between the resource extraction region and the urban sink is not necessarily only conflictual. The people of the region where the water comes from may have a shared interest with the city based on aesthetic and recreational benefits stemming from the water system, and may even come to identify with the altered landscape. (Also see Brogden & Greenberg, 2005 who address similar issues in Arizona.)

My case study, which examines the participation of the Croton Coalition in the filtration controversy, is well-suited to contribute to an understanding of how community and environmental groups in an urban setting can influence environmental policy and how that influence can be stymied or rerouted. This case study makes a contribution to the emerging literature of political ecology as applied in urban settings in industrialized countries. There are still relatively few empirically grounded studies in this area, although the number is growing (Kaika, 1998; Gandy, 2002; Keil & Desfor, 2003). Perhaps more importantly, this study is unique in the political ecology literature in its focus on the obstacles to the implementation of environmentally sound approaches to

water system management as well as the peculiarities of the New York City water system.

The Politics of Scale

Scale is a key concept in political ecology, bridging the gap between place-based analysis and analyses based on consideration of structural forces that influence, but are not located in, the particular place. Critical geographers have led the way in considerations of how we habitually assign questions to be addressed at one scale or another, taking the division of space into various levels as natural. In fact, they have pointed out, all differentiations by scale are socially produced and have multiple dimensions including the material, geographical, economic and political. Differentiation between scales and the establishment of new scales results from a process of negotiation and struggle (Smith, 1992). The multi-scale aspect of the filtration controversy is immediately obvious and is explored in this dissertation.

Empirical studies undertaken to explore the production of scale reveal how the assignment of problems to different scales can have powerful consequences. Robert Williams (1999), in a study of environmental injustice in the United States, examines how people living in communities of color affected by environmental problems view the problems as linked to a pattern of injustice at a national scale. Others, who see the problem as purely local, explain the same problems away as predictable results of the fair workings of the market. Williams suggests that politics becomes the arena in which we negotiate how to resolve problems when there is a divergence between the scale at which a problem is generated and the scale at which it is expected to be addressed. This

divergence is present, and the politics played out, every time an unwanted facility such as the Croton filtration plant is proposed for a specific location.

The production of scale may be used as a tactic to gain power by those lacking in power. For example, Steven Silvern (1999) examines a case in which the Wisconsin Ojibwe sought to protect tribal rights to use and manage natural resources. The tribe used a scalar strategy, challenging the State of Wisconsin in court to achieve recognition as a political entity on the same scale as the State. Towers (2000) describes a case in which grassroots activists opposed siting of a power line by strategically calling attention to who would benefit and suffer from the siting at various scales. Andrew Herod's (1997) study of the efforts of the International Longshoreman's Association to achieve a single contract for union workers in all North American ports describes a scalar strategy with remarkable similarities to that utilized by the towns in the New York City watershed that resulted in the New York City Watershed Memorandum of Agreement. Herod describes how the Longshoreman's Association, recognizing that competition between ports would make it impossible for workers at one port to achieve gains in bargaining, created a new scale of bargaining at the continental scale. The strategy was utilized again when the activists around the Jerome Park Reservoir reached out to communities in the watershed to oppose construction of the Croton filtration plant.

Alternatively, a new discourse of scale may be adopted by those with power in order to achieve their aims. Karen Bakker (1999), in a study of the Mekong River basin, describes how actors promoting hydropower development are creating a discourse focused on the watershed scale to conceal different interests at other scales. This discourse aims to focus attention on the benefits to the basin as a whole – at a scale which

has little meaning to most people that live in the basin. The production of scale in this case is a strategy to distract attention from the predictable negative consequences at other scales as well as the rescaling of power that will be achieved by “capital intensive exploitation, in which revenues are literally tapped and diverted away from local communities in the form of flows of water and energy” (p. 220).

Despite this example from the Mekong River basin, investigations of scale may challenge common assumptions that there is a hierarchical relationship between scales with power flowing from “higher” scales at the regional, national or global level to the “lower” local scale. However the significance of scale has been shown to be primarily a matter of relation so that labels that presume the content of the relationship and the direction in which power flows should be viewed with caution (Howitt, 2000; Cox, 1998). Pauline McGuirk (1997) used a study of the evolution of an urban development program in Adelaide, Australia to demonstrate how policy outcomes are the result of interactions between scales. She points out that the local and regional can influence the national scale and, in a perspective that resonates with concerns about agency in the current study and in political ecology in general, that people at the local scale have power to determine how they will respond to the moves of those at higher scales.

These insights about the production and manipulation of scale resonate strongly in relation to issues of the management of water resources that are the focus of the current research. The selection of the watershed as a focus of attention is an example of the production of scale. Although it is now commonly accepted to think of the watershed as a naturally bounded area, and a logical unit within which water resources will be managed, this unit of scale is no more given than any other. Ecosystems, and all aspects

of the water cycle, are interconnected at various scales (Ruhl, 2000). Water is typically managed according to multiple scalar systems, including those based on biophysical or hydrological considerations, political, or economic considerations. Historically, in the United States, attempts to manage water at the scale of the watershed have not been very successful because this scale does not correspond to any political scale (Rogers, 1993; Kenney, 1999).

The concept of scale provides a useful lens for examining the history of the New York City water system. In the material dimension, the history of the system is a history of manipulation of natural processes to create new scales. This process began with the construction of the Croton aqueduct which tied New York City to the Croton watershed, and continued with the expansion of the system to its present size by the incorporation of the Catskill and Delaware watersheds. This super watershed provides water to the City that is then discharged in areas far from where the water was extracted.

The creation of new scales in the material dimension can result in the creation of matching scales in the political dimension at several different points. For example, creation of the “super-watershed” described above resulted in the creation of a new level of government. Following several failed attempts (beginning in 1908) to create a political institution that could match this new scale, the Delaware River Basin Commission was created in 1961 by the federal government and the states of New Jersey, Pennsylvania, Delaware and New York to reflect the new scale of material changes in the landscape. This institution at the regional level manages the water flows in the Delaware watershed to maintain adequate flows in the Delaware River (Citizens Union Foundation, 1987).

As scholars have noted, flows of capital powerfully influence geographical scale (Smith, 1992). This relationship may be discerned in the reorganization of the New York City water system in 1984 when two new public authorities were established with responsibilities for the water supply system. The primary reason for the establishment of the Water Finance Authority and the Water Board was to enable New York City to borrow funds for capital investments in the water system in the bond market at a lower cost. The transfer of control of the water system to the Water Finance Authority represented an increase in the influence of forces at a new scale – that of the bond market.

As we have seen, the actions of New York City on the watershed scale also prompted the organization of protest movements. In 1991 the Coalition of Watershed Towns represented the efforts of the communities in the West of Hudson watershed to create a political presence at the scale of the material changes in the landscape caused by the development of the water system. The creation of this Coalition resulted in the New York City Watershed Memorandum of Agreement. The Croton Coalition, the subject of the research, followed suit in 1997 using a similar strategy to mount its opposition to the Croton filtration plant in the East of Hudson watershed.

Urban Water Supply

Metabolic metaphors are commonly used to describe the urban system by those attuned to the ecology of cities (White, 1994). These metaphors capture the idea that flows of air, water, food, people and waste sustain life in the city. This biological approach hints at the complex relationships between flows both within the city, and between the city and its environment. The city is a complex ecosystem in which the processes of consuming resources and producing wastes result in many unforeseen

changes. For example, when engineered urban water supply systems were introduced in the 19th century, cities were faced with an unexpected problem of how to dispose of vastly increased quantities of wastewater. The introduction of new flows of water led to the construction of sewer systems. Other examples of such challenging interactions are the phenomena of urban heat islands (an interaction between urban construction practices and weather systems) and land subsidence due to pumping of groundwater (an interaction between urban water use and land systems).

Cities are dynamic systems. Studies of urbanism examine processes of social-ecological change in cities. These processes of change can result in conditions that are dangerous and destructive. The concentration of people in cities worsens many problems of the physical and social environment. These problems include those that affect the people in the city, as well as those that may affect natural systems and people in the region of the city, in distant regions, or the biosphere as a whole (Gottlieb, 1993; Spirn, 1984; Steinberg, 2002; White, 1994).

Water is one of the key factors supporting urban existence, it is “the city’s life blood: It drives industries, heats and cools homes, nurtures food, quenches thirst, carries waste and protects health. Cities import more water than all other goods and materials combined. Sufficient water is not only a prerequisite for health, it is essential for life” (Spirn, 1984, p. 129). White (1994) has pointed out that the flow of water is the “largest metabolic feature of the urban system, being 60-100 times the size of the flow of fuel” (p. 125). The infrastructure that carries water embodies the relationship between nature and the city, tying the city to its environment. The collection and transport of water to the city is a feat that requires tremendous investments of social and financial capital.

In a masterful summary of the role of water in the urban environment that introduces her work on grassroots protest regarding water in Monterrey, Bennett (1995) introduces the major issues around urban residential water use. As she explains, the need for water begins with the requirements for appropriate access to adequate quantities of water for survival and hygiene. The quality of water must match the use to which it will be put. In the city, water is a commodity that must be purchased. As such it is a “pillar of the capitalist system: the transformation of water into a commodity forces people to work in order to insure their very survival” (p. 21). Water services, which are provided collectively, provide the government or other provider with power over consumers that may be exercised through decisions about extensions of service, setting of water rates and rationing in times of shortage.

Historically, urban water systems have been viewed as engines of urban growth. They have been the impetus for new political arrangements such as regional water districts (Elkind, 1998). Water systems have been, and continue to be, sites of conflict over the proper role of government and private industry in meeting human needs. In the ongoing conflict and negotiation over urban water systems we see how natural systems become constructed and continually reconstructed as social realities.

Water supply in the United States is the subject of study from many social scientific perspectives. The current study draws particularly on historical scholarship that has revealed the politics of water management. These studies place the issues of urban water supply in its broader context of the connection between water and power in various settings. Frequently cited works in this vein include Hundley (1992, 2001), whose history of water in California explores how various human cultures related to the

waterscape, the intersection of values and technology, the role of government, and California's efforts to procure water from wherever it was available. Reisner (1986, 1990) and Worster (1992) explore themes of the unseemly history of the Western water development and the potential for crisis as population growth taxes supplies in arid areas. Gottlieb (1988) explores the water industry, focusing on how decisions about water policy are made, and the changes that took place in the last decades of the 20th century.

In the contemporary era the process of supplying the city with water has become invisible and taken for granted (Kaika & Swyngedouw 2000). Tracing the processes of social-environmental change that have re-created the landscapes of entire regions, political ecologies of urban water systems bring the relationship between city and nature back into view. An historical perspective makes it clear that the current relationship between city and nature is only one of many possible relationships. Environmental historians have traced some of the ways that these relationships have developed. Notable contributions have been made by Melosi (2000) who points out that cities were forced to tackle the disposal of wastewater when piped water supplies became available and overwhelmed the capacity of older approaches to managing sewage. His analysis illuminates the connection between water supply and wastewater disposal, a theme of current environmental thinking about closing loops in natural resource use. He also explores how decisions about technology made in the late 19th and early 20th century have created "path dependencies" such as commitment to certain technologies and the infrastructure that was built accordingly, that are a major factor in water policy-making today. Choices such as the use of chlorine and the use of water filtration may be examples of such decisions.

In related work on urban pollution and waste disposal Tarr (1996) examines the choice of separate or combined sewers in water-carriage systems. The choice of combined sewers is rued today as cities, including New York, are forced to expend huge sums to address the problem of combined sewer overflows that send raw sewage into receiving waters after rainfall events. Tarr explores how these choices were made and put into place, suggesting how they influenced the formation of regional governmental forms such as the special district, and created new scales at which authority for water would be exercised. This process of the renegotiation of the scale at which water will be managed continues today as New York City and the communities in its watersheds develop new approaches to protecting water quality.

Several histories of particular urban water systems have explored issues of relevance to my study. Elkind's (1998) study of the water systems of the East Bay and Boston is focused at the scale of the region. Both systems draw on extensive watersheds, as is the case in New York City. Elkind highlights the political and environmental costs of regional approaches to meeting the needs of cities for water. Foss-Mollan (2001) analyzes the political history of Milwaukee's water system. She pays particular attention to the complex causes of the cryptosporidium outbreak of 1993. This outbreak occurred despite (and in fact may have been exacerbated by) filtration. Foss-Mollan argues that the crisis was the result of politicization of decisions that should have been informed more extensively by science. This case is cited frequently by activists opposing filtration in New York City. Bennett's (1995) study of the extension of water services in Monterrey, Mexico focuses on two areas of relevance to this study. First, she highlights the importance of the interaction between various layers of government in determining

the water policies of Monterrey. Progress in improving water supply in Monterrey was stymied for many years because of the conflictual relationship between the national government and Monterrey's private sector elite which exerted its power at the local level. Although the political dynamics are very different in the case of the Croton watershed, political conflict between levels of government is similarly of great importance. Second, Bennett analyzes the influence of citizen protests on policy change. She finds that the citizen protests did influence government actions, pointing out the potential for such activities to be effective despite numerous obstacles, when permitted by circumstances such as changes in political leadership.

My study adds a new dimension to this literature by focusing on urban water supply as an environmental problem inextricably linked not only to urban growth and change, but also to the relationship between urban areas and their broader geographical contexts. This research sheds light on why procuring clean water for cities remains problematic despite the progress made under the Clean Water Act and other environmental laws. This study addresses the role that grassroots citizen organizations can play in interpreting, applying and promoting pro-environmental ideas about water management. The policy advocated by the Croton Coalition, the systemic solution of watershed protection, is a form of pollution prevention (Fiorino, 1995). In a novel use of this principle, I argue that implicit in this position is advocacy for application of the precautionary principle to the initiation of water filtration. The debate over whether this kind of radical reorientation is possible is one that profoundly divides the environmental movement (Dryzek, 1997). Some believe that it is impossible under a capitalist system and that only ecosocialism, with investment and production under democratic control,

can achieve true environmental progress (Faber, 1998b). Others advocate a policy of ecological modernization in which government, business, science and the environmental movement work together to restructure capitalism along lines more sensitive to environmental concerns.

Environmental Justice

In this research the Croton Coalition is treated as a grassroots expression of environmentalism. But what kind of environmentalism does the Coalition represent? The Croton Coalition activists came from different communities, represented different kinds of organizations, and focused their attention on different aspects of the filtration issue. In fact, the activists preferred not to refer to their Coalition an environmental organization (although they did claim that the siting of the filtration plant in Norwood was an environmental injustice) and only some of them referred to themselves environmentalists. I analyze the Croton Coalition in terms of the concerns and characteristics of the environmental justice movement because the Coalition opposed the siting of the filtration plant in a poor community and brought attention to the public health consequences of the siting – concerns that are the focus of much environmental justice organizing.

The environmental justice movement is usually dated from protests against the planned disposal of toxic wastes in Warren County, North Carolina in 1982. Some scholars view the newly-recognized environmental justice movement of the 1980's as a combining of the anti-toxics and civil rights movements to create a new form of protest (Szasz, 1994; Gottlieb, 1993). However, historians who have explored the responses of Black activists to the environmental problems in their communities argue that this was not a new movement but a change of tactics (Di Chiro, 1998). As Greenberg (2000) has

pointed out, these protests built on a history of resistance by people of color and others against oppression manifested as threats to health and safety. Greenberg argues that in New York, “The legacy of slavery focuses an inequitable distribution of well-being as old as the ecological transformation occasioned by the city’s founding” (p. 224). She documents the “breadth of the protest vision” of Black activists who articulated that health and welfare were human rights that were denied to people in their urban communities. Thus, the environmental justice movement constituted primarily a change in tactics to address documented discrimination, rather than a new movement.

After the Warren County protests, Benjamin Chavis, former head of the NAACP, called the new movement a response to environmental racism. This term situated the new movement in the tradition of the civil rights movement. A narrow definition of environmental justice is that it is about distributional inequities in the siting of noxious facilities, which has been extensively documented. The Croton Coalition called on this definition when it criticized the New York City administration for siting the filtration plant in a neighborhood with a large population of poor people of color.

McGurty (2000), in her account of the Warren County protests, as well as other scholars note that right from the start organizers in Warren County realized that if their struggle was to be located in the context of social justice and civil rights, they could not call for another community to bear the burden they rejected. As such, a principle of the environmental justice movement became NIABY (not in anybody’s backyard). Thus a broad definition of waste, and a critique of societal processes that produce waste emerged.

Broader definitions of environmental justice advance a critique of capitalist investment and production practices and define it primarily in terms of class-based conflict rather than racism (Cable & Cable, 1995). Faber (1998b) argues that environmental regulation cannot succeed in protecting and safeguarding people and their environment. In the pursuit of increased profits, environmental costs are externalized on workers and the environment. Burdens are inevitably displaced, increasing pollution, spreading its effects and undermining any progress made to address isolated problems. In his view, the efforts to accommodate environmental goals within a capitalist system are bound to fail.

Environmental justice is frequently defined in terms of its contrast with the environmental movement as it was perceived in the early 1980's. According to environmental justice activists, the movement was defined by the large, professionalized environmental organizations with offices in Washington, DC that (at least at that time) focused primarily on lobbying for environmental regulations by the federal government. Scholars, and the environmental justice activists themselves, compared their ideas about nature and their constituencies to those of these established organizations. The environmentalism of these organizations was motivated by Euro-American ideas about the separation of nature and people that led them to be concerned about conservation of wildlands rather than the health and safety of people (Di Chiro, 1996). In contrast, environmental justice defined the environment as being where people live, work and play, and was concerned with a broader spectrum of issues. This definition of the environment has had far-reaching influence on environmental activism and scholarship,

and the current research draws on it to explain the significance of the controversy over filtration.

While some defined the environmental justice movement in terms of the kinds of injustices it highlighted, others defined the movement in terms of its constituency. In contrast to participants in the national, professionalized environmental organizations, the participants in the environmental justice movement were people of color, the poor and working class, women, and other oppressed groups. Pulido (1996) suggests that the common thread among these groups is sub-alternity, which permits inclusion of oppressed people both in the United States and around the world as being within the purview of the environmental justice movement, and also explains why environmental justice is intrinsically counter-hegemonic. Pulido's analysis focuses on how the identity of the movement's constituents becomes the source of new forms of environmentalism.

As a counter-hegemonic movement that interprets environmental problems as being the result of oppression, environmental justice movements demand empowerment. The environmentalism of the national, professionalized organizations is criticized as reformist, consisting merely of government watchdogs that rely on technical solutions and compromises to try to achieve progress, while environmental justice seeks meaningful participation in decisionmaking, or procedural equity (Faber, 1998b; Sandweis, 1998).

The inadequacy of mechanisms for citizen participation in decisionmaking about environmental policies is documented in the current research. Two policy issues occupied the Croton Coalition. The first, which was the initial impetus for the formation of the Coalition, was the siting of the filtration plant. The policy process for the siting of

the filtration plant clearly revealed the shortcomings of the mechanisms that were supposed to provide for participation by the community. In relation to this issue the critiques by the environmental justice movement of the siting process for noxious facilities, the initial focus of the movement, are extremely relevant. The second issue was advocacy for watershed protection to avoid filtration, reflecting the environmental justice and anti-toxics movements' critique of end-of the pipe solutions to the waste crisis.

Conflicts over siting typically have aspects of both distributional and procedural inequity. An infamous case in New York City is the siting of the North River Water Treatment Plant (NRWTP) in 1962 which spawned the grassroots activist organization West Harlem Environmental Action (Miller et al., 1996; Greenberg, 2000). In this case the plant was sited in a closed-door process. A site in Harlem was chosen over a more appropriate site near the area that was later developed as Lincoln Center. The New York City Administration's response to the protests was to place a park on the top of the plant, a strategy similar to the plan for the Croton filtration plant which includes a driving range on its roof. In an analysis of three cases of the politics of siting in New York City, Rodriguez (1999) studies the NRWTP, a medical incinerator in the South Bronx and a waste incinerator proposed for Greenpoint-Williamsburg in Brooklyn. In all three cases the communities did not become aware of the decision to site the facilities in their areas until long after the decisions were made. He finds that legislated procedures under the Uniform Land Use Review Procedure (ULURP, Fair Share, and the State Environmental Quality Review Act (SEQRA), policies intended to increase public participation, failed to provide meaningful influence on the decision-making process. He finds that the environmental bureaucracies were extremely resistant to the efforts of community groups

to participate, and that only intervention by a key elected official offered any hope for stopping the siting of the facilities. Another infamous New York City siting conflict was over the Westway, a highway that was to be built along the Hudson River in Manhattan. This project was eventually derailed as a result of a legal judgment that governmental agencies had not adequately complied with the National Environmental Policy Act (NEPA) in considering the harm that the highway could do to Hudson River fish (Wanderstock, 1984).

Inequity in the extension of water service is another type of distributional inequity that has been explored as environmental injustice. Foss-Mollan (2001) discusses how Polish wards were denied water service in Milwaukee prior to 1910. In a study that uses political ecology as the framework for analysis, Smith (2001) describes how efforts to extend water service to townships in Cape Town, South Africa, in the post-apartheid era, are being stymied by several factors. These factors include pressure from the international community pushing toward reliance on the private sector and demand-side management. Bath, Tanski and Villarreal (1998) argue that the failure to extend service to Mexican-American colonias in El Paso County, Texas was not directly the result of racism. But their analysis reveals the indirect effects of racism through economic and political processes

Some progress in addressing environmental injustice has been made with the establishment of various federal and state policies that recognize the existence of environmental injustice and require that it be considered in siting decisions (Sexton & Zimmerman, 1999). However, it is still extremely difficult for affected communities to have any influence through these procedures (Sandweiss, 1998). As Williams has

pointed out in his application of the concept of scale to the politics of environmental justice, focus on distributional equity leads to a narrow definition of the problem as local and not requiring a societal response (Williams, 1999). Over time the issues raised by the environmental justice movement have also been incorporated by the environmental movement more broadly, and there seems to be a coalescing of perspectives (Camacho, 1998 citing Bullard, 1993). This coalescing was discernible in the arguments of the Croton Coalition against filtration which drew on ideas from all sectors of the environmental movement, as well as in the Coalition's collaboration with national environmental organizations.

Citizen Participation in Environmental Policy-making

Advocates advance either functional or ethical-normative arguments on behalf of citizen participation. Those who stress the functional role of participation argue that participation makes the system work better by insuring that all information is considered and support for policy decisions is maximized (Kweit, 1987). Those who stress the ethical-normative argument hold that everyone has a stake in the environment and has a right to participate in decisions that affect them (Lafferty & Meadowcroft, 1996), and that participation nurtures responsible citizenship which is the basis of democracy (Landy, 1993).

Mechanisms that allow for citizen participation in government decision-making processes in the United States were introduced primarily as means to protect the legal rights of citizens in the face of government regulation. These mechanisms tend to be utilized by special interests that are highly motivated and equipped to assert their rights through an adversarial process. To some extent they have been designed to

institutionalize limitations on the freedom of action of bureaucracies. Therefore it should not be surprising that these mechanisms do not function effectively to promote widespread citizen participation in policy-making (Webler, 1995; Etheridge, 1987).

The environmental movement is associated with an expansion of the participation of citizens in governmental processes of decision-making, and innovations in participation have taken place in this arena. Timing seems to be the most frequent explanation for this association. Growing support for citizen participation coincided with rising concern about the safety of technology and environmental problems. Awareness that experts viewed the risks of technology and pollution differently from lay people, played an important role in encouraging people to demand greater opportunity to have their perspective considered (Fiorino, 1996). However, despite the innovations in citizen participation associated with the environmental movement, such as right-to-know laws and environmental impact statements, it has proven extremely difficult for citizens and small interest groups to influence government policies (Webler et al., 1995; Etheridge, 1987; Desario & Langton, 1987). In fact, the disappointment experienced by grassroots activists when they try to utilize these avenues for participation often results in increased mistrust of government and radicalization (Freudenberg & Steinsapir, 1992; McCloskey, 1992). Although the Croton Coalition was adept at utilizing the opportunities provided by these innovations, this account confirms that it is difficult for citizens to have a significant influence on decision-making by utilizing the mandated mechanisms provided for citizen participation.

As we have seen in reference to the environmental justice movement, paradoxically the environmental movement itself is criticized for not fostering

participation within its ranks. Many of the largest and best-known organizations are led by professional staffs and unelected boards of directors, and provide little opportunity for the average member to participate (Brulle, 2000; Duffy, 2003). The environmental justice movement has self-consciously adopted a different approach stressing grass-roots participation, flexible coalition structures and decentralization. In addition to increasing participation, some scholars believe that this form of organization may be more effective because it mirrors the decentralized forms of power that are characteristic of globalization (Schlosberg, 1999).

The issue of scale is crucial in understanding citizen participation in environmental policy-making. Scholars argue that participation is most likely to be effectively implemented at the local scale (Fiorino, 1996; Landy, 1993). Unfortunately (at least in terms of participation), authority over environmental issues has increasingly been transferred to the national or global level. The causes of many environmental problems are also found at these scales, although problems may be framed by corporations or governments as local issues in an effort to undermine the formation of oppositional alliances (Williams, 1999; also see Faber, 1998a and 1998b).

The terrain of water politics in the United States makes it difficult for grassroots activists to participate in decisionmaking. This has been documented in previous research about urban water supplies, irrigation projects, dam construction, etc, which has described the inadequate regulatory framework, proliferation of regulatory agencies and influence of special interests representing private capital. Gould, Schnaiberg and Weinberg (1996), in their study of several cases of grassroots efforts to address water quality issues, describe the activists as participants in “wars of attrition” in which their

opponents have most of the resources (p. 79). Urban water policy has been described as particularly resistant to citizen influence due to the close connection between water policy and urban growth (Gottlieb, 1988). The current research confirms that these sweeping generalizations apply in New York City.

In the face of these challenges, scholars highlight the critical importance of the grassroots or civil society more generally as the source of alternative approaches to environmental problems that may not emerge through official participation channels (Cable & Cable, 1995; Camacho, 1998; Dryzek, 1996; Keil, 2003). Grassroots environmentalism is viewed by some activists and scholars as an important component of a wider movement to reinvigorate American democracy (Cable & Cable, 1995; Shutkin, 2000). Understanding the inner workings of grassroots environmental coalitions, and their experiences in the policy process, thus becomes an important challenge. Grassroots coalitions, such as the one that is the subject of this research, may include people with diverse backgrounds and interests and may not identify themselves primarily as environmental organizations. Scholars note that the complexity of environmental issues in an era of privatization and globalization have led to the emergence of new alliances and new forms of coalition organizing (Sirianni & Friedland, 2001). The environmental justice movement has self-consciously adopted an approach stressing grass-roots participation, flexible structures and decentralization (Williams, 1999; Faber, 1998a). The current research demonstrates both the strengths and weaknesses of mobilizing a coalition to confront decentralized environmental problems such as water quality and decentralized forms of power.

Research Questions

On the broadest level, the goal of this project was to further understanding of how environmental progress and change occur. As a city-dweller conscious of the importance of urban sustainability for a future in which most people will live in cities, I was interested in shedding light on the hidden processes of urban metabolism by which cities draw on natural resources to sustain their existence. These processes, in which technical, social and political processes are intertwined, have enormous impact on the physical and social sustainability of cities.

My case study of the Croton Coalition's involvement in the controversy over the filtration of the Croton water supply was intended to reveal how grassroots activism contributes to the policy process, as well as how such activism is thwarted. Through this case study I hoped to shed light on New York City's hydro-social cycle more broadly and to contribute to greater awareness of the critical importance and complexity of urban environmental issues in industrialized countries, as well as to the policy debate about the future management of New York City's water resources. Thus, the questions that guided my research were:

How does grassroots political activism, as practiced by the Croton Coalition, contribute to the achievement of environmental change?

What can the experience of the Croton Coalition in the controversy over filtration teach us about the social processes by which cities draw on water resources to sustain their existence?

These aims led me to ask the following specific question about the Croton Coalition's members and their perspectives, positions and activities: 1. Who are the participants in the Croton Coalition? What are their values and interests? What power do they have? What alliances have they made? 2. What access did the Coalition have to the policy-making process? What role did it play? What influence did the Coalition have on the policy process? 3. What was the Coalition's understanding of the history of water quality in the Croton watershed? 4. How did the economics of water in New York City affect the Coalition's claims, strategies and ability to influence the policy process? 5. What was the policy advocated by the Croton Coalition? What are the potential environmental, political and economic effects of this policy for the New York City region? Who stands to benefit/suffer from this policy alternative? These questions guided my interviews and other data collection activities.

Methodology

My choice of method was guided by the framework of political ecology because I was drawn to that framework's focus on natural resource use within a broad theoretical perspective. I sought to gain a holistic understanding of how political and economic processes at different scales influenced the possibilities for environmental progress. Proponents of political ecology recommend a "bottom-up" approach to understand processes taking place across multiple time and spatial scales (Belsky, 2002), and the case study method is considered to be appropriate for the study of complex contemporary social phenomena that cannot be studied in the laboratory but must be understood in context (Yin, 1984). As such I chose to carry out a case study of a specific

environmental controversy that seemed to offer the possibility of exploring how environmental progress is furthered or thwarted.

My choice of cases was influenced by several considerations. The provision of adequate supplies of clean water to cities is widely acknowledged to be a critical environmental challenge around the world. New York City, although currently unique in the size of its system, provides a good opportunity to study how a major city is responding to the challenges of managing its water supply in the current era. A growing number of expanding cities around the world are facing the challenges that New York City has faced and is facing today. In examining the filtration controversy and the Croton Coalition, I soon recognized that following the evolution of the Coalition presented an opportunity to study how environmental progress might be furthered from the bottom up. At the same time, the complexity of the filtration issue and the multi-layered policy process seemed as if they would provide a window into the broader issue of New York City's management of water as a natural resource.

Throughout the course of this research I had to constantly remind myself to focus on my research questions about the role and influence of the Croton Coalition in the policy controversy over the filtration of the Croton water supply. It was tempting to wander off course into various related questions about the New York City water system, questions that were closely or not so closely related to the filtration controversy. However, guided by the research questions, I tried to maintain my focus on gaining a deep understanding of the Coalition in context. I explored the experiences, activities, practices, knowledge and perspectives of the Coalition through the eyes of its members, supplemented by the perspectives of other key participants in the filtration controversy

who were familiar with the Coalition. My goal was to uncover what happened in this controversy, situating the issue in its specific context of place, time, and social relationships and tracing the formation and evolution of the Coalition's positions and strategies.

The primary source of data for this research was interviews conducted with 25 key informants. The most important interviews were conducted with 12 Croton Coalition founders and board members, some of whom were interviewed more than once. What I learned from these interviews forms the core of this research, since I learned from them about the policies and politics of the Coalition. Each of these activists also had a wealth of knowledge about and a unique perspective on the history of the filtration controversy. These activists served on the Croton Coalition board as representatives of various community organizations, so they were able to provide me with their perspective on these organizations' relationship to the filtration controversy as well.

I also interviewed key participants in the water filtration controversy and the water policy process in New York City. These interviewees included a former commissioner of the New York City Department of Environmental Protection, the New York City Watershed Inspector General, a New York State Assemblyman, a former assistant general of the United States Department of Justice and the former Supervisor of Yorktown in Westchester County, a watershed community. I also interviewed representatives of environmental organizations involved in the controversy. A full list of the interviewees, almost all of whom agreed to be named, is attached. These interviewees provided me with information about the background and evolution of the filtration controversy. They helped me to better understand the arguments for filtration

that were opposed by the Croton Coalition. Several were also able to provide outsiders' perspectives on the effectiveness of the Croton Coalition.

I attended meetings related to the filtration controversy over a period of about four years from 2001 to 2004. I attended a range of Croton Coalition meetings, DEP hearings, and other relevant meetings that took place during the research period. I observed the relationships between members representing different groups, the evolution of their ideas about the controversy, and the development of their tactics for influencing the policy process. Although I was not an active participant in the Coalition's activities, I was a sympathetic supporter and developed friendly relationships with several Coalition leaders.

I used documents extensively. The Croton Coalition newsletters were an important source of information on the Coalition's activities and perspective. I was able to visit the Coalition's office to study documents, memos and meeting minutes. I also used NYC DEP reports, policy statements, letters to and from public officials, and media reports. Reports published by Riverkeeper and the Natural Resources Defense Council (NRDC) provided useful background on the management of the New York City watershed. John Klotz, who served as the Croton Coalition's first lawyer, has archived many legal documents related to the controversy on the website of his law firm. These documents were extremely useful in tracking the legal cases pursued by the Coalition. The Norwood News covered the filtration controversy extensively, and archived all of the relevant articles online. This was very helpful to me in establishing a chronology of events (see Appendix I). I used all of these sources to identify issues of importance, to

provide portraits of key actors and events in the filtration controversy, to construct a chronology of Coalition activities, and to analyze Coalition positions.

As my research progressed and I identified areas of particular importance, I was able to review several videotapes from a collection of approximately 600 videotapes of Croton Coalition board meetings, NYC DEP public hearings and other meetings during which filtration and related policy issues were discussed by Croton Coalition members with regulators and politicians. These videotapes were made by David Ferguson, one of the Coalition's leaders. They contain a record of the activities of the Croton Coalition and arguments made by both Coalition activists and other participants in the policy process. Future researchers may wish to note the existence of this exceptional resource.

In analyzing the case I focused at first on understanding what happened from the perspective of the Croton Coalition. I identified turning points in the history of the Coalition that helped me to understand the obstacles and opportunities that presented themselves to the leaders of the Coalition in their efforts to influence the outcome of the policy controversy. My analysis of the development and activities of the Croton Coalition was guided by the research questions that focused on how the policies and activities of the Coalition grew out of the positions of the grassroots activists and organizations the Coalition represented, how forces at different scales influenced the Coalition and structured the conflict over filtration. My analysis of the dissolution of the alliance between the urban and suburban activists led me to focus on the characteristics of place-based organizing around environmental issues. During the course of my research I was struck by the contrast between the positions of the Croton Coalition and the established environmental organizations involved in advocacy for the New York City

water system. This necessitated a detour into the history of the environmental movement to help me to understand the reasons for these differences. And finally, I have attempted to assess the extent of the influence of the Coalition on the policy process.

Plan of the Dissertation

Reflecting the framework of political ecology that guided this research, Chapter 2 explores the multiple aspects of the filtration controversy and its significance as an environmental issue. This chapter explores the physical setting, particularly the hydrology of the Croton watershed, the issue of water quality, and the social and political context at multiple scales. The history of the New York City Watershed Memorandum of Agreement is reviewed, focusing on the difference in treatment of the West of Hudson watersheds (Catskill and Delaware) and the East of Hudson watershed (Croton) in that agreement. The Croton Coalition is introduced as the main source of opposition to filtration following the abandonment by New York City of the original site for the filtration plant in the Jerome Park Reservoir. I argue that the significance of the Croton Coalition's position was that, in essence, it advocated for application of the precautionary principle to the management of New York City's water system. The precautionary principle has been applied most extensively as a response to the release of toxic substances into the environment. More recently it has been utilized in relation to the protection of ecosystem resources (for example, Bryce Thorne-Miller, 2003 who applies the precautionary principle to fisheries management), that is directly relevant to the issue of watershed management which is addressed in this study. My study is the first to apply the precautionary principle to the issue of filtration of water supplies.

Chapter 3 is an account of the participation of the Croton Coalition in the filtration controversy over a period of about six years. This chapter explores the controversy from the perspective of the Coalition and highlights the agency of the Coalition activists. The chapter is structured around four turning points in the history of the Croton Coalition and the evolution of the filtration controversy. This chapter highlights the surprising collaboration between city residents and watershed residents in advocating for watershed protection and avoidance of filtration, the complexity of their motivations and positions, and the dissolution of the alliance between the Bronx contingent and the activists from the watershed communities. I argue that the Croton Coalition does not fit into traditional categories of environmental organizations, partly because it developed in response to multi-dimensional problems.

Chapter 4 examines the role that the Croton Coalition played as a grassroots organization involved in the filtration controversy. The Croton Coalition drew on ideas and strategies developed by grassroots community organizations that emerged as part of the explosion of alternative expressions of environmentalism during the last decades of the twentieth century. These expressions included the hazardous waste, toxics, environmental justice and watershed movements which shared a place-based orientation, concern for urban environmental problems, and advocacy for pollution prevention as a response to the environmental problems created by industrial production. The Coalition situated itself as a coalition of place-based community organizations, providing a bridge between the local concerns of neighborhoods and towns and concerns at the scale of the watershed. In this chapter, the uniqueness of the Coalition's role in the controversy is

revealed by contrast with that of the environmental organizations most prominent in advocacy for New York City's water which did not oppose the filtration plant.

In my conclusion, I discuss a number of issues that emerged as central in my research about the Croton Coalition and the significance of these issues to other controversies about complex environmental challenges. First, I discuss how this research reveals the unique and important role that grassroots organizations play in reframing policy questions and introducing new ideas, such as application of the precautionary principle, into the policy process. Second, I address how this case illustrates the usefulness of the concept of scale and how this concept illuminates controversies over environmental policies. The formation of the Croton Coalition was an example of rescaling as a political strategy, and the evolution of the controversy presented many examples of the dynamic processes associated with the production of scale. Third, I examine how this case provides insights into the nature of place-based activism, and how such activism may support or undermine coalition-building. The Croton Coalition drew on the energy created by local activists' attachment to their communities. While this attachment led to a strategy of NIABY (not in anyone's backyard), it also presented challenges to the maintenance of an alliance between people from very different communities. Fourth, I review the reasons for the Coalition's political successes and failures. While the Coalition had many successes in persuading communities in the watershed to increase watershed protection efforts, it failed to change New York City's policy regarding construction of the filtration plant. These different results may be attributed to factors such as timing, the social location of the activists in the watershed in contrast to those within New York City, and the opportunities for citizen participation at

the different scales of the watershed communities and New York City. Finally, I address the implications of my research for the future of New York City's water system, emphasizing the need for public and scholarly attention to the politics of watershed protection.

Chapter 2: What is Wrong With Filtration? The Significance of Filtration as an Environmental Policy Choice

The Croton Watershed Clean Water Coalition, formed in 1997, is dedicated through regional action to maintaining, improving and protecting the quality of the waters in the Croton Watershed and to alternatives to filtration. The Croton Watershed provides high-quality drinking water, as it has for nearly a century, to more than a million of the state's residents. Does an expensive and prominent chemical filtration plant meet our needs, or is the safe, cost-effective, and nearly maintenance-free method of source protection the answer to our future? (Cover of CWCWC general publicity brochure, January 2003)

One rainy day I traveled up to Bedford, New York to interview Marian Rose, chairperson of the Croton Watershed Clean Water Coalition. It was dark and rain was pouring down when the train stopped in Bedford. Still, I was struck by the quiet as I always was when I stepped off the train. It seemed almost silent after the din of Grand Central Station and the noise of the train itself.

Marian had graciously offered to meet me at the train. As we drove the winding roads, we followed the path of a stream. In the rain and fog, the road seemed like a tunnel passing through a forest. As we came closer to the house, perched on a steep hill,

Marian told me to look out for wild turkeys. Sure enough, as we entered the house through the kitchen, we saw a pair of turkeys crossing the lawn.

When we sat down at the kitchen table, Marian told me a little bit about herself. She had come to the United States in 1940 when her family fled from Belgium. She studied at Barnard College, received her PhD in physics from Harvard University, and worked on the beginnings of the Manhattan Project. She worked in applied mathematics and physics until she retired.

As I began to question her, Marian told me about how she had become involved in the Sierra Club and later served as chairperson of her town's watershed committee. When she became chairperson of the watershed committee, her first act was to refuse a permit to a developer who applied to fill in a wetland. She was taken aback by the response. She told me that she hadn't known that no previous chairperson had ever refused a developer a permit. She said that she had been very naïve – she had thought that the job was to protect the wetlands.

As she began to tell me about the watershed, she expressed a bit of embarrassment. She said that at the risk of sounding sentimental, she felt that she had a personal relationship with the watershed. She thought of the watershed as a living being that breathes and exhales, that pumps the water like blood circulating through the body. We injure it by destroying wetlands, cutting down trees, building houses – but it recovers. It is amazingly resilient. Marian said that she felt that she must do whatever she could to save it (M. Rose, interview, November 30, 2001).



Illustration 3
Marian Rose, President of the Croton Watershed Clean Water Coalition
December 7, 2005

Introduction

From its inception in 1997, the Croton Watershed Clean Water Coalition opposed the construction of a filtration plant for the Croton water supply and advocated for application to the Croton watershed of the same policies that New York City had chosen to apply to the Catskill and Delaware watersheds. The Croton Coalition activists believed that filtration for the Croton supply was unnecessary and undesirable. This chapter provides the context for understanding the filtration question by introducing the biophysical and social characteristics of the Croton. This chapter also explores why and how different policies were applied to the Croton watershed as opposed to the Catskill and Delaware watersheds, both regarding the introduction of filtration and the extent of watershed protection as instituted in the New York City Watershed Memorandum of Agreement (MOA). The chapter concludes by comparing the analysis of filtration by the Croton Coalition to the precautionary principle. This comparison reveals the significance of the Croton Coalition's reframing of the question of whether to filter the Croton supply as one of great environmental importance.

When the Croton Coalition became involved in the controversy over building a filtration plant for the Croton water supply, its leaders aimed to reframe the policy question. Filtration is a widely-used physical procedure for cleaning polluted water. Although some chemicals may be used to aid the process, it primarily consists of treatment through sedimentation and filtration through a medium such as sand. Filtration is generally viewed as a solution to a problem. Filtration, or water "treatment," is generally thought of as a procedure that will insure clean water and protect human health. Yet the Croton Coalition leaders argued that filtration was likely to threaten human health

and harm the environment. The Croton Coalition claimed that the primary issue was about how best to assure a safe water supply, and beyond that, to examine how the residents of the watershed and of New York City could continue to depend on the ecosystem services of the watershed. The Croton Coalition activists argued that what appeared to be a seemingly straightforward policy of implementation of an accepted approach to resolve a public health problem was, in fact, a problem of much more complexity and very great ecological importance.

In some ways, the Croton Coalition's argument appeared to be simple common sense. As Marian Rose, chairperson of the Coalition, expressed so movingly when I met with her, nature gives us life and should be protected. The Coalition's position had resonance because it reflected basic principles of the environmental movement that have become axioms in American society. Sylvia Tesh (2000) gives voice to this perspective in her discussion of the core principles at the heart of the environmental movement:

...environmentalists have worked hard to promote a novel view of nature. They argue that instead of lacking intrinsic value, nature has its own integrity and thus should be revered; that instead of being divisible into discrete parts, nature is intricately interconnected and thus best understood as an organic whole; and that instead of being tough and resilient, nature is highly vulnerable to human technology and thus endangered. (p. 65-66)

These principles, which have wide public acceptance according to public opinion research (Guber, 2003; Kempton, Boster & Hartley, 1999), underlay the Coalition position.

Despite public acceptance of these principles, the Croton Coalition faced distinct challenges in applying these ideas to the filtration controversy. Applying these ideas to filtration was not a simple matter since the nature the Coalition sought to protect was a watershed that had already been thoroughly and obviously disrupted by human interventions. The Coalition argued that the watershed was a natural system that was highly vulnerable and in need of more vigorous protection, reflecting the environmentalist argument. But at the same time, in order to make its case, the Coalition had to argue that the watershed was tough and resilient enough to survive human abuse and protect human health. While environmentalists usually argue for stringent measures to protect public health, the Coalition position was that the specific protective measure of water filtration should be foregone. Both the Coalition's framing of filtration as an environmental problem, and the policy positions that stemmed from this way of framing filtration, were new, and represented a radical change in approach to the management of many environmental problems.

In this chapter I argue that the Croton Coalition was in essence, without using the term, advocating for the precautionary principle to be applied to the question about filtration. I draw on scholarship about this principle, which is a framework that provides guidelines for the consideration of environmental problems related to pollution. Stemming from a general principle of German law, this framework has been applied most widely to the issue of the release of toxic substances into the environment (Jordan & O'Riordan, 2003). Over time its use has been extended to issues of genetically modified organisms, biodiversity conservation and natural resource management, notably in the area of fisheries. Although my application of the precautionary principle to water quality

management is unusual, it is helpful in placing the Croton Coalition's arguments against filtration in the context of approaches to ecosystem management inspired by the environmental movement.

Within the realm of management of environmental problems, the Coalition's position was specifically a challenge to prevailing ideas about the management of water. Peter Gleick (2002) has used the term "the hard path for water" to summarize these ideas which have emphasized centralized approaches to controlling pollution without addressing the inter-relationship between water quality and other environmental problems. The Coalition's stance reflected a newer approach to water management that has been called "the soft path for water," a framework for water management that incorporates an environmental perspective.

For at least 100 years New York City's water managers had assumed that they would eventually implement filtration of the Croton supply. This policy reflected a general consensus among regulators and water managers in favor of filtration as a universal approach to the management of urban water quality. When the Surface Water Treatment Rule was promulgated in 1989, New York City's administration made significant efforts to secure a waiver that would allow the City to avoid filtration for the Catskill and Delaware supplies. As we shall see, federal regulators only reluctantly agreed to allow New York to avoid filtration for the Catskill and Delaware supply. However, at the same time, the City moved ahead on long-standing plans to construct a filtration plant for the Croton supply. When the communities in the Catskill and Delaware watersheds objected to new restrictions on activities in the watersheds that would protect water quality in the absence of filtration, New York City attempted to

secure their cooperation. But in the Croton watershed, New York City was reluctant to invest the political or financial capital necessary to secure the communities' cooperation. After all, it was not as important to keep the Croton supply clean. It would be filtered anyway. The contradiction between the policy that New York City adopted for the Catskill and Delaware and the policy that it adopted for the Croton is an example of the uneven adoption of new ideas emerging from the environmental movement.

Looking back, the Croton Coalition activists identified the negotiations over the New York City Watershed Memorandum of Agreement (MOA) as an important turning point in the controversy over filtration. They blamed the “growth coalition” in the Croton watershed for New York City’s decision to build a filtration plant for the Croton supply rather than to try to achieve its water quality goals through watershed protection. Real estate developers stood to benefit from less regulation of their activities and thus had an interest in seeing the plant built. Their opposition to the enforcement of watershed protection activities contributed to a context within which avoidance of filtration seemed an unrealistic goal. However, as we shall see, at the time of the negotiations over the New York City Watershed MOA, New York City was firmly committed to filtration for the Croton. The question of whether the Croton supply would be filtered was never raised in the negotiations with the Westchester and Putnam County governments. There was no controversy yet.

The Setting

The Croton watershed is a 387 square mile area located east of the Hudson River, beginning immediately north of New York City (see map in Chapter 1). The watershed lies within 2 states, 4 counties (primarily Westchester and Putnam) and 22 towns. It

encompasses 12 drainage basins and 74 sub-basins. The Croton watershed drains the waters of 3 branches of the Croton River and tributaries including the Titicus, Cross, Kisco and Muscoot Rivers. The Croton system provides about 10% of the daily supply of water of the entire New York City water system. During a drought this may increase to 20-30%. In 2002, the total surface water system for New York City supplied 1.2 billion gallons per day to 8 million people in New York City and about 1 million people in Westchester, Putnam, Ulster and Orange Counties (Galusha, 1999; Kane, 2003; NYC DEP, 2002a). All water supplied to New York City from all three of the City's watersheds was disinfected by chlorination but remained unfiltered as of 2005.

An important issue in the controversy over filtration was the quality of the water in the Croton system. There was general agreement among proponents and opponents of filtration that the quality of the water supplied by the Croton watershed was high. The Croton Coalition emphasized that the water was at least as clean as the water from the Catskill and Delaware supplies. The New York City Department of Environmental Protection, while claiming that the water was perfectly fine and healthful, emphasized that there was seasonal variation in quality and that there were times when the water from the Croton had to be mixed with higher quality water from the Catskill and Delaware (West of Hudson) supplies in order to be used. In times of drought, when more Croton water might be needed, quality problems might limit the amount of water that could be drawn from the Croton supply. Michael Principe, Deputy Commissioner and Director of the Bureau of Water Supply, stressed in an interview that New York City needed to be able to obtain the maximum quantity of water from the Croton for system redundancy. The NYC DEP planned to begin taking the West of Hudson (WOH) system off-line for

repairs beginning in 2010 and would then need to depend more heavily on the Croton supply (M. Principe, interview, September 1, 2005).

However, questions about future quality were more important in the filtration controversy than those about current quality. In this regard, proponents and opponents of filtration highlighted several specific characteristics of the Croton watershed in comparison with the West of Hudson watershed, that is the Catskill and Delaware watersheds. The Croton watershed had significantly larger areas of wetlands than the West of Hudson watersheds. Wetlands contribute to water quality by slowing runoff and filtering contaminants, but also contribute organic carbon to the water. Organic carbon, added to water both by wetlands and by erosion caused by stormwater runoff, was a source of concern in the Croton watershed because it interacts with treatment chemicals to cause dangerous by-products. Excess phosphorus, primarily from fertilizer washed into reservoirs, contributes to the problem because it promotes the growth of algae which then decays, adds additional organic carbon to the water, and leads to a chain reaction of adverse impacts that require the use of more treatment chemicals. Excess phosphorus can lead to eutrophication of water bodies, as in the famous case of Lake Erie in the 1960's. In this condition the excess nutrients lead to explosive growth of algae, which reduces oxygen levels and make the water inhospitable to fish and other aquatic species. The Croton reservoirs were described as "borderline" eutrophic (Tierney, 2003 and P. Mankiewicz, interview, January 7, 2005).

Contact with soil is the primary vehicle for the filtration of water in nature. For this reason, land use is a very important factor in water quality. When the Croton system was built, between 1837 and 1911, Westchester County was a rural area. By the 1990's

Westchester was a suburbanized county and Putnam County was the frontier of suburbanization. Pires (2004) utilized a variety of sources to conclude that land use in the watershed was 40% residential, 30% undeveloped, 10% industrial and commercial, 14% recreation, and 6% agricultural (p. 165).

The size of the population in the watershed was one of the primary reasons given to justify the need for filtration. As described above, many of the activities of people have the potential to affect water quality negatively. According to the NYC DEP, in 2003 there were 190,000 people living in the Croton watershed and 69 sewage treatment plants. By way of comparison there were 98,000 people and 35 sewage treatment plants in the West of Hudson watershed (Freud, 2003), and 68% of the land was forested (Pires, 2004, p.165). Although the activities of a growing population certainly have the potential to negatively affect water quality, it is the interaction between people and the biophysical environment that determines whether water quality is actually impaired. There was general agreement among both government agencies and environmentalists that the water supplied to New York City from the Croton watershed was clean enough to meet all of the relevant federal and state health standards. The Croton supply sometimes failed to meet standards for color and taste. Sub-standard color and taste may or may not be related to the healthfulness of the water. While the Croton Coalition activists downplayed their significance, regulators considered sub-standard color and taste to be indicators of possible problems.

The characteristics of the constructed water system also influence water quality. The reservoirs in the Croton system were interconnected by streams rather than pipes. This means that all of the water flowed above ground. Thus water quality could be

directly affected by land use and discharges of effluents all along these watercourses. At the same time, the flow of water through interconnected streams and reservoirs provided opportunities for materials to settle out of the water, potentially improving water quality. In contrast, in the West of Hudson system (Catskill and Delaware watersheds), constructed later, water flowed from the reservoirs in underground pipes. The New Croton Aqueduct, which was completed in 1893 and was the oldest of New York City's aqueducts and tunnels, conveyed the water from the New Croton Reservoir which is the collecting reservoir for the Croton system, to the Jerome Park distributing reservoir. This aqueduct was designed to allow infiltration or seepage of water to augment the quantity delivered to New York City. As the watershed developed this feature became problematic as the infiltrating water could be contaminated. Once it reached New York City, water from both systems was vulnerable to contamination by street runoff and sewage that was able to infiltrate the old and deteriorated water mains and pipes of the distribution system.

The system of reservoirs was an overwhelming feature of the environment for people living in the watershed. The reservoirs were not hidden away. Many roads were built right next to the reservoirs and even passed over them. In fact, many communities were perched on hillsides around the reservoirs, since the valleys were flooded to create the reservoirs. The people in the Croton watershed valued the reservoirs as an aesthetic and recreational resource. Many people in the watershed had direct experience with the interconnection of water systems because their homes were equipped with septic systems and private wells that supplied drinking water. They had seen what happened when water was over-pumped. This was very different from the situation in New York City

where residents' direct experience of the water cycle was limited. There, by contrast, the joke was that most people thought that water came "from the faucet."

Sources of Water Pollution in the Croton Watershed

Source waters may be polluted in a variety of ways, which can be grouped into two categories. The first category, point source pollution, refers to site specific sources and includes deliberate disposal of sewage and industrial wastes into water bodies. For example, there were 68 sewage treatment plants that discharge into the waters of the Croton watershed. Non-point source pollution is dispersed pollution that may result from runoff from agriculture, lawns, roads and buildings. Much non-point source pollution reaches water bodies during rainstorms when pollutants are washed away as stormwater.

It was generally accepted that the main cause of water pollution in the Croton watershed was stormwater. According to James Tierney, New York City Watershed Inspector General (2003),

Polluted runoff is broadly accepted as being by far the largest source of pollutants currently entering the New York City Watershed. This, even though there are over 100 sewage treatment plants that discharge directly into drinking water streams. Most stormwater pollution occurs during major rainstorm or snow melt events.
(p. 3)

Since stormwater was generally agreed to be the main source of pollution in the Croton watershed, land use was the focus of attention in efforts to reduce pollution. Although agriculture may be a source of polluted stormwater, and was a problem in New York City's two other watersheds (known collectively as the West of Hudson watersheds) it was no longer a major source of concern in the Croton watershed because agriculture had

all but disappeared from the area. However, suburban development was of great concern. Suburban houses are typically surrounded by lawns that are managed with fertilizers and herbicides. New parking lots and roads increase the amount of stormwater runoff. Since much of the valley land in the Croton watershed was occupied by reservoirs, and more desirable housing lots had already been built upon, there was pressure to construct housing on steep slopes. Construction on steep slopes may increase road runoff and also lead to leakage from septic systems. Loss of wetlands exacerbates the problems caused by runoff because wetlands are natural filters. Although the Croton watershed was rich in wetlands, wetlands were rapidly being lost to development.

As proposed by the New York City Department of Environmental Protection, the Croton water treatment (filtration) plant was to employ a conventional process. The process included a number of steps. The first step was mixing the raw water with coagulants to remove suspended particles (coagulation and flocculation). Then, dissolved air flotation, which is a less common technique that replaces the more common technique of sedimentation in settling tanks to remove the coagulated particles. These steps would be followed by filtration, disinfection with ultraviolet light, and chlorination for disinfection of pathogens. Wastewater from the treatment process would be conveyed to an existing wastewater treatment plant (New York City Department of Environmental Protection, 2004). Plans for the plant, including its size and the exact processes to be used, changed several times during the course of the controversy.

In making its case against filtration, the Croton Coalition raised questions about the actual status of water quality in the Croton, about the significance of the standards being used to evaluate water quality, and about the accuracy of predictions about future

water quality. For now, we note that none of these issues were clear-cut. This complex subject will be addressed in further detail in Chapter 3 in relation to conflicts over the interpretation of scientific data, and the role of science more generally, in the process of policy-making regarding the management of the Croton watershed.



Illustration 4
 Map of the Northwest Bronx
 Showing Jerome Park Reservoir and the Mosholu Golf Course in Van Cortlandt Park
 The two sites considered for the Croton Water Treatment Plant
 Open Accessible Space Information System
www.oasisnyc.net

New York City's Policy on Filtration for the Croton Water Supply – Should the Croton be Filtered?

Before we turn to the position taken by the Croton Coalition, we will review the background of the New York City's policy on filtration in the Croton. As we have seen, the controversy about filtration was set off by changes in federal water quality laws in the 1980's. The Croton Coalition was formed in 1997, however New York City had considered filtration for the Croton supply since at least 1900. Around that year land was set aside at Jerome Park Reservoir in the northwest Bronx for a filtration plant. This land was later released for other public uses when New York City adopted chlorination instead of filtration. Plans for filtration were revived at several points, including in the 1970's.

In 1986 the Safe Drinking Water Act (SDWA) was passed by the US Congress, and in 1989 the Surface Water Treatment Rule (SWTR) came into effect. This rule required that all large cities using surface water must filter their supplies by June 1993. The New York State Department of Health (NYS DOH) was delegated primary authority for enforcement of these regulations in the State (referred to as "primacy"). As a result of lobbying by New York and other cities, an exception was made possible for supplies judged to be well-protected (Cronin & Kennedy, 1997). The regulations set a very high bar for protection, stating that "The public waters 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" (SDWA Title 40 141.71). For an exception to be granted, a city was supposed to apply for a waiver by 1991. The SWTR prompted construction of

many filtration plants across the United States. Only a handful of cities attempted to obtain a waiver from the US EPA.

New York City applied for and received such a waiver, known as a “filtration avoidance determination” or FAD, for the Catskill and Delaware supplies. New York City did not apply for a waiver for the Croton system. As we shall see, the reasons for omitting the Croton included a calculation that the Croton supply would not meet the requirements for a waiver as established by the US EPA, and that an application for such a waiver would undermine New York City’s case in seeking a waiver for the Catskill and Delaware supplies. On October 30, 1992, New York City signed a stipulation with the NYS DOH in which it committed to build a filtration plant. US EPA approved this stipulation with a letter from EPA Region II Administrator Constantine Sidamon-Eristoff in January 1993.

Although New York City had agreed to build the filtration plant by signing the stipulation in 1992, the emergence of opposition in the neighborhoods around Jerome Park Reservoir caused unexpected delays. This opposition brought progress on the filtration plant to a halt in 1996 when Mayor Giuliani responded to the community pressure to reconsider the siting of the plant. The opponents of the filtration plant questioned New York City’s process for deciding to filter. They wanted to know when this decision had been made and who had made it. When they discovered that New York City had not applied for a waiver for the Croton supply, they wanted to know why it had not. Karen Argenti, a leader of the opposition to the siting of the filtration plant in Jerome Park Reservoir and a founder of the Croton Coalition, described what had happened as a deception. The DEP was meeting with the community around Jerome

Park Reservoir in 1991-1992, and then in 1993 called a scoping meeting to establish the issues to be addressed in the environmental impact statement for the filtration plant:

“They deceived us, because they should have told us about signing the consent decree in 1992. When they told us, it was already a year later and it was too late to object to it...”

(K. Argenti, interview, May 6, 2004).

According to Michael Principe, Deputy Commissioner of the NYC DEP, the decision not to apply for a waiver was made because the NYC DEP was already committed to building a filtration plant for the Croton supply (M. Principe, interview, September 1, 2005). Al Appleton, who was the NYC DEP commissioner at that time, told me that he considered trying to avoid filtration for the Croton. He said that “the choice became either filtering Croton and knowing we would get good water, or trying to avoid filtering Croton, spending at least as much money and having political blood all over the landscape, and then maybe winding up having to filter it anyway” (A. Appleton, interview, June 28, 2005). The decision not to apply for a waiver was made within the New York City administration, without public notice or opportunity for comment. Later, when New York City blamed the US EPA for the need to filter the Croton the activists questioned the entire process. It looked to them as if the entire decision was made in a series of agreements between the New York City, New York State, and Federal governments concluded behind closed doors. Some of the Croton activists called the decision-making process a conspiracy - a deal made long before the 1991 deadline. Frank Eadie, one of the Croton Coalition founders, believed that it had been made in the 1980’s during the Koch Administration. He suspected that the two environmental organizations most prominently involved in advocacy for New York City’s water supply,

the Natural Resources Defense Council (NRDC) and Riverkeeper (headed by Robert F. Kennedy, Jr.) might have been involved in the decision:

That decision was probably made 20 years ago. Probably under the Koch administration. Do you know Frank...one of Koch's DEP ommissioners... McArdle? I suspect it was made under him. Which was in the mid-80's. McArdle to this day shows up at almost every hearing on Croton filtration, and says something like "its not really clear the Croton really needs to be filtered, but since EPA says it has to be, it should be filtered in the Bronx." And he actually represents at these meetings, an organization of building contractors and construction unions, a coalition. Basically he represents the industry. So I suspect he has made a lot of money off of Croton filtration over all these years. His involvement and the way he speaks about it seems fairly clear there was a deal made back in the 80's, and I wouldn't be too surprised if Kennedy and NRDC was actually involved at that point in making that decision. For sure it was in effect by '91 because that's when the big study of filtration, as opposed to filtration avoidance, for both Cat Del and Croton were done - studies which have never been made public. These were on whether filtration was necessary. (F. Eadie, interview, March 12, 2004)

This is issue is discussed in detail in Chapter 4.

Obviously the view of the NYC DEP was different. According to former DEP Commissioner Appleton, who served under Mayor Dinkins (1990-93), New York City was most concerned about avoiding the high cost of filtration for the Catskill and Delaware watersheds, source of 90% of New York City's water under normal conditions.

Filtration was considered a necessary public health measure, and anyone that proposed watershed protection as a substitute for filtration was called hopelessly naïve because protection would depend on controlling land use. Within New York City it was considered unlikely that the US EPA would accept the City's proposal to avoid filtration for any part of the watershed. Given that the Croton watershed was so much more developed than the Catskill and Delaware watersheds, if New York City had sought a filtration avoidance determination for the Croton it would have appeared as if the City was ignoring the facts and seeking to avoid filtration even at the cost of risks to public health. New York City fully expected to filter the Croton, and in signing the stipulation with the NYS DOH it was merely trying to gain more time in which to do so. As Appleton said:

Nowadays watershed protection seems obvious, it seems like apple pie and motherhood. But 15 years ago watershed protection was kind of the goofy little nice cuddly academic idea. The kind that if only we could do it that would be great, but that's not the real world. There were a few who felt very strongly that there was no living force on the planet that could control land use. And there were also many people that felt that all water systems should be filtered, just as a backup. So it was an enormous uphill battle...we were considered naïve...and that's isolating, and a very politically deadly tactic. (A. Appleton, interview, June 28, 2005)

The New York City Watershed Memorandum of Agreement - The Croton Watershed in the Context of the Entire Water System

In order to obtain and retain the filtration avoidance determination (FAD) for the Catskill and Delaware watersheds under the Surface Water Treatment Rule (SWTR) of 1989, New York City had to demonstrate to the US EPA that it was serious about watershed protection. Thus began a process that eventually resulted in the New York City Watershed Memorandum of Agreement (MOA) of 1997. The Croton Coalition was formed partly in response to the completion of the MOA, and the programs instituted under the MOA would have significant implications for the future of the Croton watershed. New York City's decision to avoid filtration, and the programs that it instituted under the MOA, were widely acclaimed as examples of recognition by government of the value of ecosystem services and the benefits of employing ecological economics (Chichilnisky & Heal, 1998; Daily, 2002; Wilson, 2002; Mas, 2004; Postel, 2005a; Postel, 2005b; and also see Sagoff, 2002 for an alternative view). The MOA appeared to provide a framework for regional cooperation in an approach to the watershed that incorporated cutting edge ideas about ecosystem management and environmental economics.

When the NYC DEP began the process of instituting new watershed protections that would enable it to avoid filtration, the agency proposed new regulations to control polluting activities in both the West of Hudson and East of Hudson watersheds. However, the agency's actions indicated that it believed that it was not as essential to provide the same level of protection for the Croton watershed as for the Catskill and Delaware watersheds. At first New York City showed little interest in obtaining the

cooperation of the communities in the Croton watershed. In the end the MOA did include watershed protection programs for the Croton watershed, but these programs were funded at a much lower level than in the Catskill and Delaware watersheds (A. Bock, interview, September 2, 2005; Westchester County, 1995). For the Croton Coalition, the treatment of the Catskill and Delaware watersheds in the MOA served as a standard by which the Coalition could assess the success of its own efforts to procure similar treatment for the Croton watershed.

Regulations Announced

The process that led to the New York City Memorandum of Agreement (MOA) began in 1990 following announcement of the federal Surface Water Treatment Rule (SWTR) and New York State's announcement that in administering the SWTR it would require universal filtration for water systems in the State. Both New York City and environmentalists hoped to avoid filtering the Catskill and Delaware watersheds. New York City wanted to avoid the cost of \$6-8 billion for a filtration plant. The leading environmental organizations concerned with New York City's water were eager to use the opportunity offered by the effort to avoid filtration to further watershed protection.

In 1990, after years of work and with the immediate incentive of the Surface Water Treatment Rule (SWTR), New York City announced strict new regulations to protect all three watersheds. The new regulations had implications for land use in the watershed communities, addressing issues such as buffer zones around water courses, the siting of buildings and expansion of sewer services. The new regulations were followed by announcement of an agreement with the US EPA that New York City would purchase 10,000 acres of land in the Catskill and Delaware watersheds as a further water protection

measure. There was a very negative response from the watershed communities to the prospect of increased limitations on land use and polluting activities in the watersheds, and to the prospect of land purchases by New York City, which the communities felt would affect their economies as well as their autonomy. New York City had to withdraw the proposed regulations. The towns in the Catskill and Delaware watersheds formed a Coalition of Watershed Towns to sue New York City. In 1993, and again in 1994, New York City offered financial compensation to offset the cost of the regulations to the West of Hudson communities to try to persuade them to accept the new regulations and land purchases, but these offers were not accepted (Pfeffer & Wagenet, 2003).

East of Hudson and the New York City Watershed Memorandum of Agreement

In the Croton watershed (or East of Hudson), the Westchester and Putnam County governments took the lead in responding to New York City's efforts to put the new watershed regulations into place. The interests of the East of Hudson communities were somewhat different from those of the communities West of Hudson. Westchester County in particular was suburban rather than rural, no longer agricultural, and much wealthier. But the main difference between the East of Hudson and West of Hudson communities was that New York City was not pursuing a filtration avoidance determination (FAD) for the East of Hudson watershed. Westchester and Putnam Counties argued that if New York City was going to build a filtration plant for the Croton supply, they should not be subject to the same level of regulations as the communities West of Hudson. On the other hand, they argued, if they were going to have to be governed by the regulations, they should receive a similar level of compensation as was being offered to the

communities West of Hudson. In 1995 the Westchester County Executive wrote to the Director of the New York State Department of Health to complain that New York City was failing to respond to the County's efforts to resolve the impasse over the watershed regulations:

...the County has reviewed this sixth set of revisions (December 1994) to the proposed New York City Watershed Rules and Regulations. As we have stated many times before, and in spite of the fact that the Croton system is not part of the USEPA Avoidance Determination, we support the bulk of these regulations and believe that improved watershed protection is long overdue. Nonetheless, we continue to be concerned with key regulatory requirements that unduly affect the Croton watershed. While more is needed to protect and improve the Croton supply, the fact that it will be filtered should permit some flexibility in defining the means to that end. (Andrew P. O'Rourke, County Executive, letter to Michael Burke Director, NYS DOH, Bureau of Public Water Supply Protection, March 2, 1995)

A Westchester County position paper (Westchester County, 1995) on the watershed regulations stated that "Westchester believes that 98% of the proposed New York City watershed regulations are sound and appropriate for the Croton watershed" (p. 1). Westchester County, which coordinated closely with Putnam County throughout the negotiations, focused on several issues. First, the County sought some flexibility in the regulations regarding wastewater discharges to be applied in the Croton watershed. Since filtration was to be implemented along with other measures, the County argued that such flexibility was warranted. Second, the County proposed that New York City fund a plan

to divert sewage out of the watershed. Third, the County asked that New York City implement a program of land acquisitions, despite the Croton watershed not being included in the filtration avoidance determination. Fourth, that local and county regulatory agencies should retain their responsibilities for watershed-related functions and that these responsibilities not be transferred to New York City. And finally, that Westchester County should receive compensation comparable to what the West of Hudson communities would be receiving.

According to Aaron Bock, who participated in the negotiations between Westchester County and New York City as the Supervisor of the Town of Yorktown, the issue of whether or not the Croton supply would be filtered was never raised as an issue during this period; “it was just a given.” The main concern of the communities in Westchester was to preserve their home rule prerogatives, “we wanted to get regulations that we could live with so that we would be the ones to plan for ourselves about growth or no growth.” According to Bock, the question of whether filtration was needed was not raised in his community until the New York City Department of Environmental Protection proposed to site the filtration plant in Yorktown in late 1996 – a year after the negotiations had been concluded but prior to the final completion of the New York City Watershed MOA in 1997 (A. Bock, interview, September 2, 2005).

Results of the Negotiations

Little progress was made in resolving the differences between New York City and the watershed communities between 1990 and 1994. In 1995 Governor Pataki offered to mediate between New York City and the watershed towns. The negotiations were a cooperative, although not a public process, which in the end enabled New York City to

institute the long-delayed new watershed regulations and to institute programs to protect water quality. These programs included septic system rehabilitations, sewage plant upgrades, land acquisitions, farm and forestry management programs, etc. The programs established under the New York City Watershed MOA included many innovative and positive features, including incentives for the communities in all three watersheds to cooperate with New York City on watershed protection. These incentives included New York City's agreement not to use its power of eminent domain to acquire land in the watersheds. The communities in the Catskill and Delaware watersheds received funds from New York City for economic development projects compatible with watershed protection. As previously noted, New York City received a great deal of favorable publicity for this agreement, which has been portrayed as reflecting the value that the City placed on a sustainable solution to threats to water quality, and recognition that making financial investments in the preservation of the ecosystem was economically preferable to destroying it (Cronin & Kennedy, 1997).

The conclusion of the MOA in 1997 was a major turning point for the Croton watershed, despite the focus of the agreement on the Catskill and Delaware watersheds. At that time the differences between the plans for the West of Hudson and East of Hudson watersheds became public. New York City agreed to spend \$250 million on land acquisitions in the Catskill and Delaware watersheds, compared to \$11.5 million (supplemented by \$7.5 million by New York State) in the Croton watershed. New York City would pay for upgrading the sewage treatment plants in the watershed. New York City also agreed to provide \$68 million for water quality investments to Westchester and Putnam Counties. These funds were to be preserved until the counties decided whether

to implement a plan to divert sewage outside of the New York City watershed to the Hudson River. Aaron Bock, Supervisor of the Town of Yorktown and a member of the group that negotiated with New York City on behalf of Westchester County, told me that he was the one who had raised the idea of sewage diversion during the negotiations (A. Bock, interview, September 2, 2005). Diversion was incorporated into the New York City Watershed MOA and was subsequently opposed by the Croton Coalition and others. (See Chapter 3.) If the counties did divert sewage outside the New York City watershed, any funds saved by New York City because it did not have to upgrade the sewage plants in the Croton would also be provided to the two counties for other watershed-related projects. The process that led to the signing of the New York City Watershed MOA, and the reasons for the differences in the treatment of the watersheds, will be explored more fully below.

Role of New York State and Governor George Pataki

The critical role played by Governor Pataki in the New York City Watershed MOA negotiations highlighted the influence that New York State has on the management of New York City's water system. Under federal legislation, the state is usually given primacy in enforcement of environmental laws. The state has more influence in enforcing the Safe Drinking Water Act than in other environmental laws because of the way in which the provisions regarding primacy were worded (L. Schiffer, interview, June 24, 2005).

In addition to the role played by state government as enforcer of the federal environmental laws, an important political factor in the management of the New York City water system is that the watersheds extend far from New York City into many

jurisdictions. The particular problem in this case is that authority for the watershed – crucial for protection – is separate from authority for the water supply and the potential filtration plant.

According to expert observers, the New York State agencies did not aggressively enforce water pollution or watershed protection laws in the New York City watershed despite these considerations, (A. Appleton, interview, June 28, 2005; Cronin & Kennedy, 1999; E. Goldstein, interview, June 20, 2005). The State retreated even further during the period leading up to the negotiations over the New York City Watershed MOA, following Governor Pataki's direction not to aggressively enforce the law (Cronin & Kennedy, 1997). Although the NYS DOH initiated the lawsuit that forced the NYC DEP to move ahead on construction of the filtration plant, in general the NYS DOH was considered to be an ineffective guardian of water quality in New York State. This problem was briefly brought to public consciousness by a campaign organized by Riverkeeper to pressure the NYS DEC to enforce regulations regarding the operation of sewage plants operated in the watershed by New York City. This campaign emphasized that Croton water contained sewage, an inflammatory but accurate fact that helped to mobilize grassroots interest in the watershed (Cronin & Kennedy, 1997; Kennedy, 1999). Several Croton Coalition activists first became involved in advocacy about New York City's water as a result of this campaign. Kennedy led the delegation of environmental organizations that eventually participated in the negotiations for the New York City Watershed MOA. Five environmental organizations became signers: The Catskill Center for Conservation and Development, the Hudson Riverkeeper, the Trust for Public Land, the Open Space Institute and the New York Public Interest Research Group.

The New York City Watershed MOA did change the situation somewhat, in that the Governor became directly involved in supporting cooperation between New York City and the upstate communities. However, as Karen Argenti explained, the division of responsibility for the watershed among so many different regulatory authorities made watershed protection difficult to implement. For example, responsibility for the quality of drinking water fell to the New York State Department of Health (NYS DOH), while that for the quality of water bodies fell to the New York State Department of Environmental Conservation (NYS DEC). And New York City was limited in its ability to regulate the watershed because the watershed was outside of the City's jurisdiction, while New York State's governor had political incentives to refrain from pressuring the watershed communities on behalf of the interests of New York City. In Argenti's view, the situation was unworkable:

From the government point of view, New York City and NYC DEP have jurisdiction only over New York City. The person who has the jurisdiction (in the watershed) is the Governor, but he doesn't want to harm friends in Westchester and Putnam...the government is set up wrong because the person responsible for protecting the watershed has no authority in the watershed....Another problem is that DOH [New York State Department of Health] only worries about what comes out of the tap, and the DEC [New York State Department of Environmental Conservation] only worries about natural resources. DEC has nothing to do with this. How can you protect the watershed without an active role for the DEC? That's the governor's job. From a purely political point of view, the scenario is

set up to fail or to give whoever decides a good excuse. (K. Argenti, interview, May 6, 2004)

In an effort to address this problem, the New York City Watershed MOA included provisions for the creation of the position of the Watershed Inspector General in the attorney general's office. According to Cronin and Kennedy's (1997) account of the negotiations, Kennedy demanded the inclusion of this provision as a condition for Riverkeeper to approve the agreement. This office had wide latitude to monitor and enforce the provisions of the MOA. James Tierney, the head of this office, was widely respected by all sides. Tierney described the problematic regulatory framework in these terms:

The people at the NYS DOH say we do safe water, not clean water. The people who govern quality and the people that govern pollutants are separate...all these townships have home rule over land use...so there is nothing you could call regionalization except for the DEP watershed regulations. I am the person that has to pull things together. For example, in Brewster they are building a new sewage treatment plant and they are short of \$30 million. We need to find the money and it could be from anywhere. Who will pull this together as it breaks into recriminations and nasty lawsuits? There's nothing institutionally except me... (J. Tierney, interview, January, 7, 2004)

Croton Coalition View of the New York City Watershed MOA

When the Croton Coalition was formed in 1997 the New York City Watershed MOA had recently been completed. The Coalition activists were deeply concerned about the implications of the agreement for their efforts to avoid filtration for the Croton

watershed. In seeking to understand how the Croton watershed had been left out of the filtration avoidance determination (FAD), and how the Croton watershed was shortchanged in terms of investments in watershed protection, the Croton Coalition activists felt that the Croton watershed had been betrayed. In their view the NYC DEP was beholden to development interests that preferred filtration to increased regulation of land use in the watershed. Furthermore, the NYC DEP had also treated the Croton watershed as a bargaining chip in the negotiations with the US EPA over the filtration avoidance determination. The activists also charged that the Westchester and Putnam County governments had acquiesced to the NYC DEP and completely failed to advocate for aggressive watershed protection which was in their own best interest.

The Croton Coalition activists were convinced that the NYC DEP had little interest in watershed protection, and had only pursued filtration avoidance for the West of Hudson watersheds because the cost of building a filtration plant was unacceptable. Their view was based on the common perception of the NYC DEP as an agency whose direction was set by engineers and whose priority was the massive construction projects for which it was famous, rather than watershed protection (A. Appleton, interview, June 28, 2005). The founding of the Croton Coalition coincided with a period, during the administration of Mayor Rudolf Giuliani, in which the NYC DEP's lack of commitment to watershed protection and notable mismanagement drew increased public attention. Beginning in 1997, Riverkeeper, one of the two environmental organizations that were most involved in monitoring the New York City water system, published a series of damning reports detailing the NYC DEP's scandalous mismanagement. These reports charged that the NYC DEP had shown no willingness to protect the watershed from

development, capitulating to developers on many issues. They also described the lack of institutional commitment to enforcement within the NYC DEP, and how the NYC DEP's own watershed police were harassed by the agency's leaders if they tried to carry out their responsibilities (Kennedy, 1999; Kennedy, Sullivan & Postman, 1999). In 2000, Riverkeeper submitted a freedom of information request that resulted in the NYC DEP's acknowledgement of the existence of major leaks in the Delaware Aqueduct, and in 2002 a court monitor was appointed to supervise the agency's clean-up of mercury and PCB (polychlorinated biphenyls) spills that it had concealed (Kennedy, Odefey, Wegner & Yaggi, 2000; Weiser, 2004).

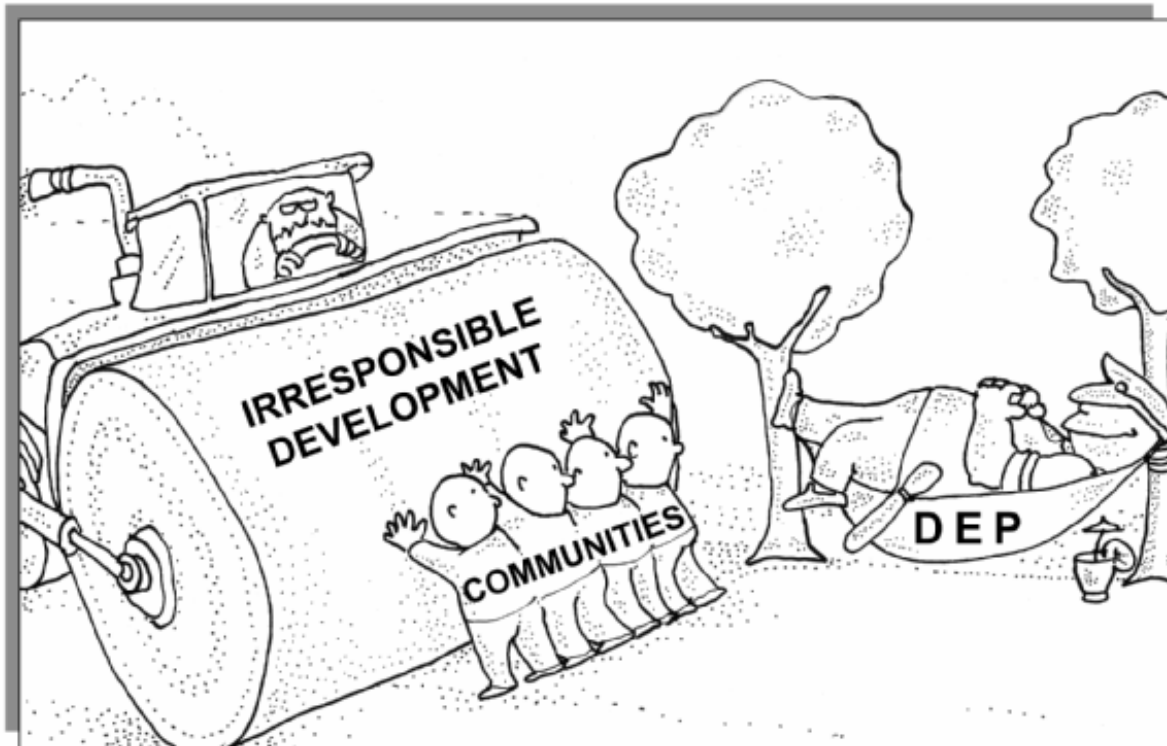


Illustration by Enrique Dura

Illustration 5
“Sleeping DEP”

Cartoon by Enrique Dura appeared in Our Water Our Future
Croton Watershed Clean Water Coalition Newsletter, Issue 25
January-February, 2005.

The Croton Coalition activists felt that the Westchester and Putnam governments had “given away the store” in the New York City Watershed MOA. Although, as we have seen, the Westchester and Putnam County representatives that participated in the negotiations believed that filtration for the Croton was not a subject open to negotiation, the Croton Coalition activists questioned this. The Croton Coalition activists accused the Counties of accepting that the Croton water supply would be filtered and not protected at the same aggressive level as the West of Hudson watersheds. The Croton Coalition activists attributed the Westchester and Putnam governments’ capitulation to exaggerated concerns about home rule and desire for unfettered growth. Marian Rose, president of the Croton Coalition, described the attitude of the politicians East of Hudson as uninterested in increased watershed protection, even if that meant foregoing the financial incentives New York City was offering in exchange for cooperation:

There was a lot of resentment of the DEP in the East of Hudson (EOH) communities. ‘We don’t want DEP here was the attitude.’ Putnam County instituted a lawsuit to try to keep the DEP’s regulations out. I was on the wetlands commission of my town at the time, and I tried to say that we should collaborate with the DEP. But no one was interested in that. ...in the EOH we got only \$10 million dollars for land purchases, compared to the \$250 million New York City gave for land in the Catskill and Delaware watersheds. Maybe the representatives of the towns EOH were interested in development and didn’t want the land bought up. ...the supervisors of the towns, they want to control the land.

They don't want DEP to buy it. They want control of their fiefdoms and they want to help their friends the developers. (M. Rose, interview, July, 7, 2005)

The influential role of real estate developers and the construction industry, and the priority given to growth in local politics is well-documented (Logan & Molotch, 1987). In the Croton watershed, developers had made clear their opposition to increased regulation of land use for the purpose of watershed protection. Forty-five Putnam County developers sued New York City over the proposed new watershed regulations (Kolbert, 1998). The president of the Construction Industry Council of Westchester and Hudson Valley, responded to an article by Gudrun Lelash of the Federated Conservationists of Westchester County and Marian Rose, then of the Atlantic Chapter of the Sierra Club, writing that,

Those seeking to avoid filtration also fail to mention the cost associated with restrictive land use regulations imposed by New York City to protect watershed lands. Hundreds of land owners in Putnam and Westchester have initiated legal actions, charging that the regulations have constituted a taking of land because they cannot develop their properties...Public need is not being served by LeLash and Rose who debate filtration in a weakly veiled attempt to stop all developmental progress in Westchester and Putnam communities...(Pepe, 1998).

In the experience of the Croton Coalition activists, real estate developers had a great deal of political influence in the watershed counties, obtained through their status as major campaign contributors. Paul Moskowitz, a Croton Coalition board member who ran for office in Yorktown, described the close relationship between the real estate industry and government in Westchester County:

But it turned out for instance that on the issue of diversion – another complex issue dealing with the watershed – that Savin Engineers – the company that did the report on diversion for Westchester county – is a big contributor to Andy Spano the county executive. So there is a link there. In the Town of Yorktown the chair of the Democratic Party, Joe Apicella, is executive vice president of Cappelli Enterprises. Cappelli is the largest developer in Westchester County. So this is out and out blatant. The chair of the party is vice president of the developers. So you couldn't have a more direct connection than that. Except for the donations made to the Yorktown Democratic Party by developers. This is how they fund their campaign. (P. Moskowitz, interview, April 4, 2004)

In addition, the small town governments throughout the watershed were not equipped to implement watershed protection measures that might entail challenging the plans of real estate developers. They were afraid to object to the plans of developers because the developers had far more resources than the towns, and could expend those resources on court fights. As Marian Rose described,

You need a very good reason to oppose developers. The minute you say no, you get sued under Article 78 – that you're acting capriciously. The towns are terrified of getting sued. The towns have poor lawyers and the developers have expensive lawyers. I said no to a developer once when I was on the wetlands commission for my town and it was in the newspaper. (M. Rose, interview, November 30, 2001)

The Croton Coalition activists repeatedly pointed out the connections between the real estate industry in the watershed communities and in New York City, and how the

network of ties between the real estate development industry and the government extended beyond individual towns and counties. The people seeking to develop land in the watershed had political influence in New York City, and with the Governor as well. As one Croton Coalition board member explained:

NYC DEP has devoted millions to buying land WOH because they want to keep it undeveloped. They're not spending much money EOH because Westchester and Putnam politicians want this space developed and they don't want the City interfering. So it doesn't take a mathematical genius to see what is happening. The county administrations are trying to protect the real estate development community so they can take this vacant land and put more people...

There are some very powerful people in Westchester County. Why does Donald Trump want to put golf courses in Westchester County? These people talk to each other and the negotiations between politicians here and in New York prevailed. And the City had to figure out how to protect the water and still accommodate Westchester's politicians. Hence filtration. (O. Sandler, interview, February 6, 2004)

The Croton Coalition activists pointed out that the influence of the developers was not just an unfortunate feature of the political system, but that there was corruption involved as well. One Croton Coalition board member described how Jim Roberts, a respected engineer employed by the NYC DEP, was pressured not to participate in enforcement of the watershed protection regulations:

I can't prove a bit of it and I don't have the resources to look into it, nor would I want to. I wouldn't want to be the person to do that story. I do know that when

Jim Roberts, the engineer, started going to meetings and talking about things to save the watershed, he was approached by a contractor and offered bribes, and he also got threatened. They threatened him and his wife. These were mostly construction guys though. I don't think any unions were involved in that. But he received a lot of threats. He had to make sure that when he was meeting with the contractor that he always had a witness, and sometimes Ivanka (his wife) went with him. This is in her book [Roberts, 2003]. It's fascinating. Sometimes she went along as his secretary - he said "this is my assistant". So there would always be another person there. Otherwise they could offer a bribe and he wouldn't have any witness to back him up. At one point he was told that he was worth about \$450,000. All the contractors got together and decided they would give him \$450,000 if he would leave them alone. (Croton Coalition board member, interview, March 25, 2004)

Westchester and Putnam Counties were given greater discretion over the monies they received in the New York City Watershed MOA than were the WOH communities. For example, while New York City was to implement sewage treatment plant upgrades in the West of Hudson communities, Westchester and Putnam counties were given the funds for this purpose and provided with some flexibility in their use. Oreon Sandler, an engineer and a Croton Coalition board member described the different treatment of the EOH and WOH watersheds as a result of the differing interests in the two areas, and the level of political influence of developers: "...political forces here said you give us the money and we'll solve it...whereas everywhere else in the watershed New York City

went in and upgraded the plants. Prior to all of this New York City had studied it, they know all the wastewater treatment plants” (O. Sandler, interview, February 6, 2004).

Aaron Bock, the Supervisor of the Town of Yorktown and participant in the negotiations on behalf of Westchester County, agreed that the watershed communities wanted to ensure that they controlled land use. But he also pointed out to me that initially New York City did not offer the communities in the Croton watershed any funds at all because the Croton supply was to be filtered. The need for filtration of the Croton supply was never in question during these negotiations, and the construction of a filtration plant was presented as a given. The group negotiating on behalf of Westchester County was pleased to extract what they perceived as a significant amount of funding from New York City (A. Bock, interview, September 2, 2005).

Croton Watershed Used by New York City Department of Environmental Protection as a Bargaining Chip

As we have seen, the Croton Coalition felt betrayed by more than just the Westchester and Putnam local and county governments that they believed had failed to advocate on behalf of the Croton watershed. They believed that New York City had used the Croton watershed as a bargaining chip in its negotiations with the US EPA over the filtration avoidance determination (FAD) and with the parties to the New York City Watershed MOA in those negotiations. While the NYC DEP may have agreed with the US EPA that filtration was needed in the Croton, it seems that the Croton activists were correct in accusing the NYC DEP of using its commitment to filtration for the Croton to bolster its credibility with the US EPA. According to former Commissioner Appleton, New York City’s commitment to move forward on the Croton filtration plant helped the

City convince the US EPA to accept the New York City Watershed MOA. Lagging on filtration for the Croton could have undermined New York City's position in negotiations with the US EPA that it was committed to assuring water quality and would do whatever was needed, including building a filtration plant if it was truly necessary.

Commissioner Appleton's claim is bolstered by evidence that the US EPA was leaning toward requiring the City to filter the water from the Catskill and Delaware watersheds. The US EPA granted the FAD for the Catskill and Delaware water supplies reluctantly, despite the recommendation of a scientific panel appointed to advise the agency on the matter. The panel recommended that the FAD not be granted (Okun, Craun, Edzwald, Gilbert & Rose, 1997). Apparently the US EPA was not convinced that New York City would be able to protect the Catskill and Delaware watersheds sufficiently to maintain the FAD. Because of these concerns the US EPA retained primacy over the Catskill and Delaware watersheds until 2007, indicating that the federal agency would have a direct role in monitoring and enforcement of the provisions of the FAD (Federal Register, July 31, 1997). In contrast, primacy over the Croton and all of the rest of New York State was given to the NYS DOH.

The US EPA allowed only a handful of large cities to avoid filtration. Within the US EPA the Surface Water Treatment Rule (SWTR) was viewed as unambiguous and the "EPA systematically went after all of the systems that were out of compliance. It was not a high discretion issue...although there is always discretion in whether to sue, there was no question about a system the size of New York's. It was a time when water systems were having trouble, it was a high priority issue" (L. Schiffer, interview, June 24, 2005). Only one other city with a water system comparable to New York received a FAD. That

city was Boston, and I was told by a government official involved in enforcement of the SWTR that the view within the US EPA was that Boston had avoided filtration only because an EPA official made an unauthorized commitment that the FAD would be granted and this commitment was upheld in court (L. Schiffer, interview, June 24, 2005).

To add to the list of betrayals, the Croton Coalition activists were also disappointed by some of their erstwhile allies in the environmental movement. Robert Kennedy Jr., founder of Riverkeeper and one of the most active and confrontational voices on behalf of watershed protection in the New York region, participated in the final round of negotiations over the New York City Watershed MOA. Most of the people that I interviewed claimed that the question of filtration for the Croton was never discussed in the negotiations. Cathleen Breen, watershed director for NYPIRG, and Marc Yaggi of Riverkeeper were both hired to monitor implementation of the MOA. They were surprised to learn that filtration for the Croton was an issue. NYPIRG and Riverkeeper were both signers of the MOA, although neither of these staff members actually took part in the negotiations (C. Breen, interview, January 31, 2006). On the other hand, Karen Argenti reported that at a public discussion of the New York City Watershed MOA, Robert Kennedy Jr. said that there was a side agreement that required the State and Federal government to prosecute New York City if the City failed to go forward with the filtration plant (Affadavit of K. Argenti, July 21, 1997). Whether or not there was any kind of official agreement about this, the policy positions taken by Riverkeeper and NRDC, the two environmental organizations that were most active on watershed issues, were a profound disappointment to the Croton Coalition activists. The relationship

between these organizations and the Croton Coalition will be explored in greater detail in Chapter 4.

Effect of the New York City Watershed MOA

While the Croton Coalition activists felt that the Croton had been massively shortchanged in the New York City Watershed MOA, on balance the existence of the New York City Watershed MOA was probably positive for the activists' position. It kept the possibility of filtration avoidance alive. Without the New York City Watershed MOA it would have been much more difficult to argue that the Croton should be an exception to the federal law requiring filtration. After all, only a handful of cities had received any relief from this regulatory obligation. Because of the MOA, the resources being devoted to protection in the Catskill and Delaware watersheds were significant. The Croton Coalition activists could and did argue that the Croton deserved the same. Still, the contrast between the treatment of the West of Hudson watersheds and the Croton watershed had multiple effects. While New York City's investment in the Catskill and Delaware watersheds demonstrated what was possible, it also confirmed for the activists that the City had "given up" on the Croton. In the words of the Croton Coalition activists, the Croton was the "sacrificial lamb."

The Croton Coalition's Environmental Argument Against Filtration

In contrast to the position taken by the NYC DEP and New York City administration, and supported by the Westchester and Putnam County administrations, the Croton Coalition opposed the construction of a filtration plant for the Croton water

supply. Although the Coalition gave many reasons for its opposition, some of which might be considered tactical, implicit in its objections was a coherent environmental argument against the plant. In this section I will describe this argument and explain how it reflects both the growing complexity of environmental problems and our growing understanding of how to deal with these problems.

The Croton Coalition's argument against building the filtration plant reframed the issue of filtration. Until the Coalition's entry into the policy controversy, the policy question had been about how to comply with the federal regulations about water treatment and where to site the facility. The Croton Coalition's question was different, their question was about a significant decision that would influence New York City and its environment for generations to come. It was about the preservation of critical ecosystem services supplied by the watershed that could not be replaced. They pointed out that the decisions that were being made were about the relationship of millions of people to vaguely understood, complex natural processes. These decisions might have repercussions for many generations. The Coalition's conception of the issue of filtration placed the issue in the context of the global unresolved urban water crisis. Although the Croton Coalition activists did not use this term, in this research I contextualize the environmental significance of the filtration issue as a challenge to accepted public policy that might trigger the implementation of the precautionary principle.

The heart of the Croton Coalition's argument was that filtration should not be considered a benign addition to the operation of the water system. Rather, filtration should be viewed as a misguided attempt to fix one problem by creating another one. Instead of fixing the problem of pollution or preventing the problem from worsening,

filtration remediates pollution after the fact. The Croton Coalition argued that methods could be used to prevent pollution of the water supply that would eliminate the need for filtration. These included “best management practices” to limit stormwater flows into streams and reservoirs, limitations on development, and preservation of open space. In addition, septic systems and sewage treatment plants could be upgraded. Furthermore, the Croton Coalition argued that relying on filtration to protect the quality of the water supply was a risky strategy. Technology can be unreliable, as was demonstrated by the well-known failure of a filtration plant in Milwaukee (Foss-Mollan, 2001). Uncertainty about the future also should be taken into account. Current technology choices might not be appropriate for future needs.

The Croton Coalition also emphasized the size and complexity of the water system. Water quality is influenced by many factors, including both physical and social factors. It was uncertain what the effects of the introduction of filtration might be. There was a chance that filtration might worsen the problem it was supposed to solve. Notably, filtration might encourage additional development in the watershed.

Finally, the Croton Coalition argued that choosing filtration over protection of the watershed would unfairly penalize the poor and powerless both in this generation and future generations. Building the filtration plant would impose unfair burdens on people in the neighborhood of the plant, in New York City, and elsewhere. In the neighborhood, parkland would be eliminated and there would be health impacts from both construction and operation of the plant. In New York City, the burden of paying for the plant would fall most heavily on the poor. The plant would also create new pollution in the form of emissions from trucks and the need to dispose of waste from the filtration process.

Construction of the plant might severely limit the choices of future generations if the watershed were to become more severely degraded.

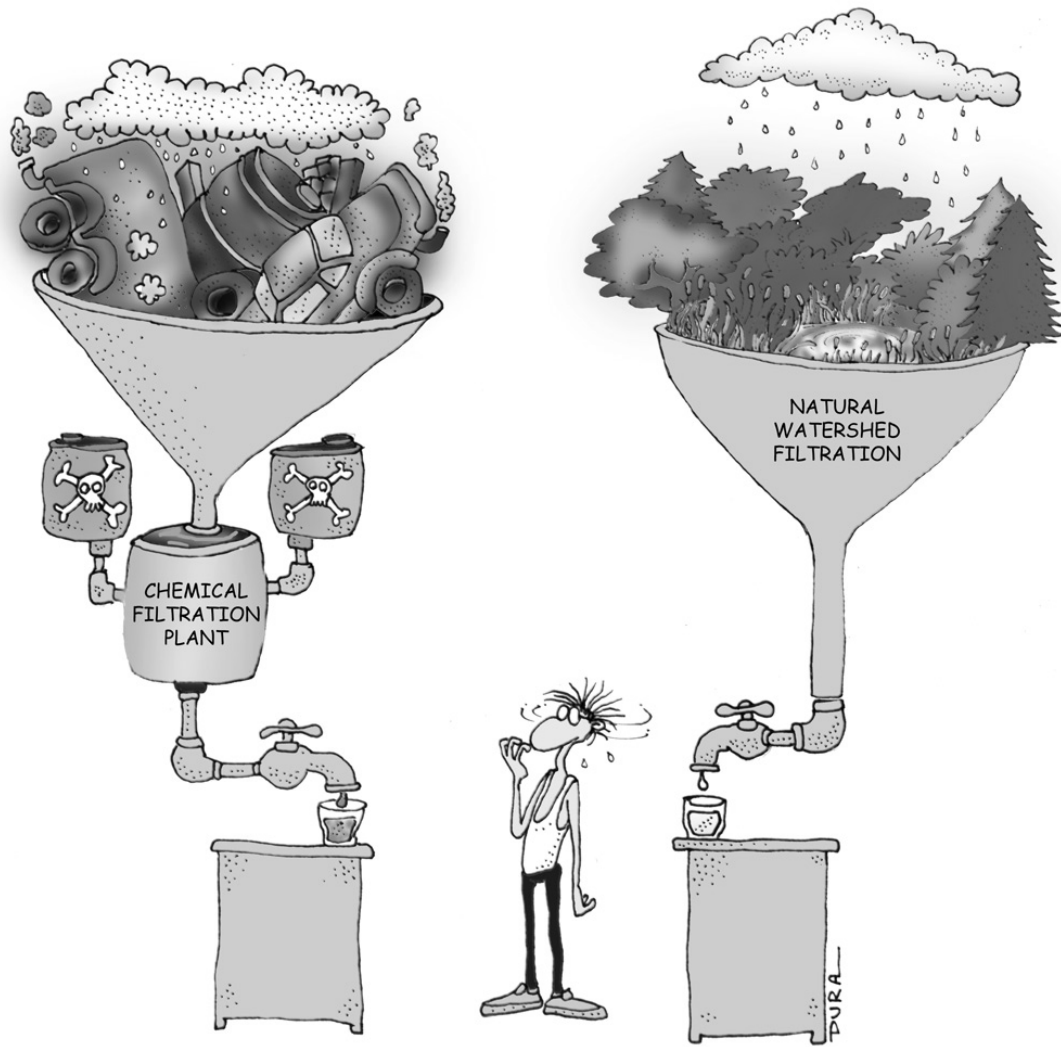


Illustration 6
"Faucets"
Cartoon by Enrique Dura that appeared in Our Water Our Future
Croton Watershed Clean Water Coalition Newsletter, Issue 20
March-April, 2004

Filtration and the Precautionary Principle

The precautionary principle was originally developed as a framework for the consideration of the risks of policies in cases where there is considerable scientific uncertainty. As a legal concept, the precautionary principle developed from the principle in German law of “*vorsorgeprinzip*,” which translates as ‘forecaring’ or “foresight principle.” It began to appear in international agreements in the 1970’s in relation to pollution of the oceans. Notably, it was included in the Rio Declaration on Environment and Development following the Rio De Janeiro United Nations Conference on Environment and Development in 1992 (Cooney, 2004). The framework of the precautionary principle has been applied to decisionmaking about the release of chemicals and genetically modified organisms into the environment. These issues have raised concerns about widespread impacts, unknown interactions with other substances and irreversible harm. There are many different statements of the precautionary principle. For our purpose, it may be summarized as,

...in general terms, the precautionary approach involves a shift in emphasis in governance of environmental risk, from reacting to clearly defined problems as they arise, to recognition of uncertainty and ignorance, anticipation of harm, prevention of problems, taking cautious action, and monitoring of potential impacts. (Cooney, 2003)

According to conventional opinion, the policy of filtering water would not seem to be characterized by a level of uncertainty and risk that would justify the application of the precautionary principle. Filtration is a way to reduce risk and protect human health

by removing pollutants from water. The technology utilized is not complicated, although it is expensive, has been used extensively and is localized. Although risks may be involved, they are relatively well understood. Even if filtration were not implemented, simple prevention of pollution might be an adequate policy response to threats to water quality.

However, the Croton Coalition's argument suggested that this surface appraisal of filtration was inadequate. The question of filtration should have triggered consideration of precaution because the question was not merely whether or not to build a filtration plant, but how to maintain the viability of the water supply for millions of people. There was a potential for serious and irreversible harm if the watershed was further degraded. And the complexity of interactions between the many physical and social factors raised the possibility of many unknown risks and uncertainties.

In such cases the precautionary principle provides some guidelines for examining and responding to policy questions. Although the precautionary principle is intuitive in the sense that it is about taking the prudent course of action and behaving in a way that is consistent with our moral obligation to refrain from harming others, there is much more to it (Jasanoff, 2003). Jordan & O'Riordan (1999) introduce the major themes of work about the precautionary principle as:

- "A willingness to take action in advance of formal justification of proof;
- Proportionality of response;
- A preparedness to provide ecological space and margins for error;
- A recognition of the well-being interests of non-human entities;
- A shift in the onus of proof onto those who propose change;

- A greater concern for intergenerational impacts on future generations; and
- A recognition of the need to address ecological debts.” (p. 24)

The Croton Coalition argued that preserving the watershed was a better way to insure clean water than filtration. This approach is central to the implementation of the precautionary principle which advises focusing our efforts at the ecosystem level. The sustainability of ecosystems depends on management for their preservation at the highest possible level, rather than on management for individual resources. Aligning management of natural resources with natural processes has the benefit of simplification and builds in resilience. Management of the landscape enables the watershed to function and provide clean water. Focusing on the water itself, rather than the watershed, is less effective and more expensive. Furthermore, given the complexity of ecosystems, we should not assume that we can accurately judge when the limit has been reached on their assimilative capacities. Protection of the ecosystem of the Croton watershed provides “ecological space and a margin for error” (Jordan & O’Riordan, 1999, p26) that will not be present if it becomes degraded (Allen, Tainter & Hoekstra, 2003). In fact, it bears noting that there is frequently greater certainty about the outcome of preventive solutions than about the risks of an environmental intervention (Tickner, 1999).

As the Croton Coalition argued, management of water quality by management of the land has the potential to create positive feedback loops and positive unintended consequences. One of the natural resource areas in which the precautionary principle has been applied is in fisheries management. Boyce Thorne-Miller (2003) describes how in fisheries management, management for one particular species is not particularly effective, and ecologists are now turning to the establishment of marine protected areas.

Focusing on the ecosystem, and protecting an entire marine habitat leads to unexpected positive interactions and long term benefits. One of the founding members of the Croton Coalition expressed a similar idea:

...the world cannot exist, civilization cannot exist much longer if we keep on doing business in the same way. And if we can take a natural process to accomplish an industrial process, the benefit from that is enormous. And it's in air, water, energy, right down the line. You know, someone said this, maybe Karen or Marian, we have a filtration system, designed by God and it's better than theirs. Also there's something called positive feedback. Whenever you create a circular natural system you create positive feedback. When you have a mechanical, engineered system all the feedbacks are negative. You're using energy, power, waste and you're getting nothing back except the clean water. It just doesn't work. If we continue to opt for those kind of solutions, then civilization is lost. It really is. Civilization as we know it is on the edge. It may be too late anyway. But we have to come up with systems that give us positive feedbacks, not negative. And using natural filtration is the ultimate positive feedback system. And using chemical filtration is the ultimate negative. (J. Klotz, interview, February 13, 2004)

The role of technology in the management of water quality in the Croton watershed was a central issue for the Coalition. Centralized technology is generally favored in conventional approaches to water management of all kinds. The precautionary principle is not about automatically rejecting technology, and in fact supports innovation in technology, but it does advocate that technology be viewed with caution for a variety

of reasons. Allen, Tainter and Hoekstra (2003) suggest that in managing ecosystems the industrial model is to apply energy to natural resources systems. This may result in greater production but also increases complexity, causes undesirable side effects and diminishing returns. Technology of information that helps managers to understand the resource system and helps them to direct efforts may be helpful, but not “hard technology of big industrial engines.” There is a tendency of technological systems to be self-perpetuating, and to preclude better options, that seems clearly to be a factor in the management of water (Gee & Stirling, 2003; Jasanoff, 2003).

The Croton Coalition’s concern for future generations reflected another important theme of the precautionary principle. The most obvious intergenerational impact of the filtration plant is that the cost of the plant will be borne by future water ratepayers. But the Coalition activists pointed out that there might be other intergenerational impacts of even greater significance. If the construction of the plants were to lead to further degradation of water and the capacity of the watershed to provide clean water were to decline, the options of future generations would be much more limited. Future generations might be unable to pay the increased costs to obtain clean water, or might be unable to obtain an acceptable level of water quality at any cost.

Implementation of a precautionary approach requires that the onus be on the proponent of change, that there be a large scope for decisionmaking, and consideration of a wide variety of alternatives. This is exactly what the Croton Coalition argued was lacking in consideration of the filtration issue. If the narrow question of where to build the filtration plant was the question under consideration, the possibility of protection of the watershed as an alternative would not be seriously examined. The Croton Coalition

wanted to broaden the question to one of how best to insure the availability of clean water.

The most common criticism of the precautionary principle is that it represents a quixotic attempt to avoid all risk by doing nothing. This is a misleading argument. Prevention of damage is not doing nothing, rather it is the most that can be done. As the Coalition argued, prevention is a critical step in preservation of the watershed's capacity to provide a crucial resource. And beyond prevention, the precautionary principle requires that pro-active steps be taken to protect the environment and human health (Jordan and O'Riordan, 1999). Stirling and Tickner (2004) advise that in implementing the precautionary principle as a guide in risk assessment, "Alternatives assessment is to identify opportunities to prevent an activity from adversely affecting environment and health. A secondary goal is to drive innovation towards more environmentally friendly and sustainable technologies, products and practices" (p. 191).

For precaution to be taken seriously as an option, it is of critical importance that the public is given every opportunity to participate in the decision-making process (O'Brien, 1999; Raffensperger & Montague, 2004). A broad range of options are more likely to be considered when a variety of people are able to suggest alternatives, and are able to consider attractive alternatives to conventional solutions. As we shall see, the Croton Coalition's participation in the controversy brought the local knowledge of members of the public to bear upon the question of whether filtration was needed. The Coalition activists suggested, contrary to the prevailing understanding in the NYC DEP and the US EPA, that political will could be mobilized to support watershed protection in the Croton watershed communities. As we shall see in the next chapter, the Coalition

also utilized a network of people with local knowledge to identify opportunities to improve water quality using methods other than filtration. However, in this case the public was not provided with significant opportunities for participation at an early stage when an open process of alternatives assessment is most useful (Stirling & Tickner, 2004). They began to advocate for alternatives at a point when the range of options that the NYC DEP would consider for protecting water quality had already been determined.

The Hard Path and the Soft Path for Water

The Croton Coalition's arguments against filtration also challenged the prevailing approach to the management of water. Filtration reflects the traditional paradigm for "meeting water related needs." Borrowing a term from Amory Lovins (1977) work on energy, Peter Gleick (2002) has called this paradigm the hard path. The hard path "relies almost exclusively on centralized infrastructure and decision-making: dams and reservoirs, pipelines and treatment plants, water departments and agencies. The hard path delivers water, mostly of potable quality, and takes away wastewater" (p. 1). Scholars have described how the elements of the hard path have influenced the development of various aspects of water management, including development of water supplies, management of water distribution, and wastewater management. There are many examples of how the hard path has resulted in unintended consequences that are now recognized as major problems. These include the construction of large dams and the adoption of water carriage sewerage systems.

In contrast, Gleick has identified six elements that characterize the soft path for water. Gleick's paradigm constitutes a useful summary of concerns that environmentalists have identified in our current approach to water management. Just as the precautionary

principle helps to highlight what makes opposing filtration an environmentally significant position, the soft path highlights how the Coalition's position represents a radical change in our relationship to water as a natural resource. The elements of the soft path provide a useful framework for understanding why filtration may not be the best solution to the problem of pollution in the Croton watershed. Although the Coalition activists were not aware of Gleick's formulation, their arguments against filtration draw on many of the same ideas that Gleick has incorporated into his framework. The six elements of the soft path may be summarized as:

1. Making meeting the water related needs of water users most efficiently the priority, rather than making a profit by delivering more and more water.
2. Utilizing the potential to supply water of varying qualities for different purposes, rather than the simplicity of supplying water of one quality.
3. Implementing decentralized solutions rather than assuming that centralized solutions are always preferable.
4. Engaging water users, not only or primarily engineers, in decision-making and implementation.
5. Recognizing that ecosystem health is a valuable water service. Water that remains in the environment, not only water that is extracted, is productive.
6. When considering the economics of water projects, taking into account the many interactions between water uses and between water and other resources. (Gleick, 2002, p. 3-6)

The proposed construction of a filtration plant for the Croton water supply was a classic example of a hard path solution. First and foremost it was an investment in a very

large centralized, expensive facility that would take many years to plan and construct. It also represented a technical fix, as described by Rogers (1996):

In essence a technical fix is the response to a crisis brought about by failure or misuse of technology, which is then “fixed” by some other application of the same, or different, technology...Federal and other agencies responsible for water supply and management have historically relied upon technical fixes. In response to increased demands for water and water-based services the agencies proposed bigger and better facilities – more dams, larger canals, higher levees, deeper channels, more and bigger locks on the rivers, and more and more complicated water treatment plants – all heavily subsidized by federal and local taxes. The environmental viewpoint is that systemic fixes would be a better response, such as source reduction of wastes or demand management by rationing or pricing. These would reduce the need for increasingly complex and expensive technical solutions. (pp. 101-102)

Decentralized solutions that were proposed by the Croton Coalition and others included “best management practices” (BMPs) to reduce stormwater impacts, new pipes, and sewer system upgrades. These kinds of approaches integrate prevention of pollution with treatment by natural processes. Paul and Julie Mankiewicz (1998), scientists that advised opponents of the filtration plant, described the potential for strategies that would harness the filtering capacity of soils in the Croton watershed, “Landscape based treatment installations which can be replicated throughout the watershed will provide decentralized, redundant, robust and lower cost water quality protection. They should also yield higher water quality. This tool kit includes: terraces, gabions, coupling wetlands with upland

soils, stream bank stabilization, in-stream aeration, and infiltration hollows and basins” (p. 59). These kinds of approaches are known as “green infrastructure.” Paul Moskowitz, a Croton Coalition board member and a physicist, articulated this argument specifically against the filtration plant:

In terms of the filtration plant it’s a lot more difficult because you have 3 agencies that you are fighting; NYC DEP, NYS DEC and USEPA. And they are all together a concerted bureaucratic action to foist a quick solution to a much more complex problem. As a physicist, scientist and working engineer I have been employed as a scientist for well over 30 years by various different governments and private industry. It’s all in the details. You realize that smaller distributed solutions are much better than vast single engineering projects. Those Vast projects never deliver all that they promise. They are much more likely to fail than many small projects to correct any problem. They sound better, and therefore governments and private industry will often go for a quick, vast, not inexpensive, easily very expensive solution, that doesn’t work. And the same is true for building a filtration plant or the whole diversion issue in Yorktown, Westchester, New Castle and Yonkers. It’s the same thing. Do you want this very expensive grandiose plan which in the end won’t solve the problem, or do you want to put in the effort to correct the problem more at its source? (P. Moskowitz, interview, April 4, 2004)

The cost of filtration as opposed to watershed protection was a major concern of the Croton Coalition, reflecting the more comprehensive approach to the economics of water advocated as an element of the “soft path.” In the case of filtration, the elements

of ecosystem health and secondary economic benefits are closely related to the element of decentralization. While construction of a filtration plant would result only in supplies of clean water for water users in New York City, implementation of decentralized solutions to the problem could also safeguard the health of people in the watershed that use well water, preserve water bodies for recreational use, provide open space, etc. The secondary benefits that would result from the protection of the natural infrastructure must be added to the amount saved in not constructing the filtration plant.

Conclusion

This chapter has set the scene for the entry of the Croton Coalition into the policy controversy about filtration. As we have seen, New York City had long expected that the Croton supply would require filtration. Yet, as new supplies came on line and water quality in the Croton watershed remained high during most of the year, New York City put off construction of a filtration plant. Federal regulators decided that filtration should be a universal precaution employed by urban water systems, and their new regulations prompted New York City to resume planning for the filtration plant in the 1980's. These entrenched assumptions about filtration were carried by New York City's water managers, federal regulators and environmentalists into the negotiations for the New York City Watershed Memorandum of Agreement. The need for filtration for the Croton supply was not questioned during these negotiations. Although Westchester and Putnam Counties' administrations did extract some funding from New York City to enhance protection of the Croton watershed, the amount of funding was much less than that promised to the West of Hudson communities where filtration was to be avoided.

Thus, when the Croton Coalition was formed, the policy to move ahead on filtration for the Croton watershed was firmly established. The Croton Coalition challenged this policy by questioning the bedrock assumption that filtration was necessary and desirable. The Croton Coalition situated the policy question about filtration for the Croton water supply in the context of the environmental crisis. The activists of the Coalition drew attention to the deep dependence of urban residents on the ecosystem services provided by the Croton watershed. They reframed a question about compliance with regulations and siting of a treatment plant, into one about the sustainability of the water supply and the relationship between public health and ecosystem health.

Although today most Americans accept the basic principles of environmentalism, the Croton Coalition struggled to communicate its objection to filtration – a technology that is usually perceived as a solution to a problem. The filtration issue, like other environmental problems, was characterized by complexity, uncertainty, and dependence on the specificities of the biophysical and social setting. The definition of the problem and potential solutions were limited by the defining discourse. The two concepts examined here, the precautionary principle and the soft path for water, provide frameworks for the examination of filtration that can lead to the surfacing of alternative solutions. These alternatives represent a radical departure from conventional approaches to the management of water that have yet to become generally accepted.

The Croton Coalition's position challenged the conventional ideas about water management. A factor in regulatory opposition was the fear that allowing New York City to evade filtration would encourage others and undermine the drive toward universal

filtration of water supplies. But as New York City was committing to filter the Croton, the limitations of filtration as a response to water pollution were already becoming clear.

As Rogers (1996) explains in his examination of water policy in the United States:

...taking into account the entire system is a simple scientific imperative when one is dealing with complex dynamic systems. We have ignored it for many years in the water pollution business, for example when we chose to focus on the technology for controlling sources of water pollution rather than focusing on the ambient environment and asking what would be the best way of achieving a desired level of quality. We now find ourselves, many years and many billions of dollars later, still faced with major water pollution problems due to diffuse sources of pollution (non-point sources). (p. 83-84)

The next chapter relays the story of the Croton Coalition, how it made its case in opposition to filtration, and the obstacles it faced.

Chapter 3: The Croton Watershed Clean Water Coalition - Grassroots Voices and Agency

Introduction

In 1996, Karen Argenti, a neighborhood activist who lived next to the Jerome Park Reservoir in the Bronx, initiated the organization of a coalition to advocate for a “dual track” policy for the Croton watershed. This policy, to try to avoid filtration by instituting watershed protection while also moving forward on plans for a filtration plant, would mirror the policy that New York City was pursuing for the Catskill and Delaware watersheds. Argenti’s aim was to enlist people in the watershed in this effort to demonstrate to the policy-makers in New York City and the EPA that the watershed communities had the political will to take the actions necessary to implement an effective watershed protection program.

As we have seen, at the time of the Croton Coalition’s establishment, New York City was already firmly committed to construction of a filtration plant for the Croton water supply. Officially, the policy of enhanced watershed protection was being applied in the Croton as well as in the Catskill and Delaware watersheds. But in reality, efforts to protect the Croton watershed were significantly less aggressive compared to what was being put in place in the other watersheds as a result of the New York City Watershed Memorandum of Agreement. The imminent decision about the siting of the Croton filtration plant was the focus for activists who formed the Croton Coalition.

This chapter, in which the experience of the Croton Coalition is examined, forms the core of this research and dissertation. The Croton Coalition’s experiences in the

controversy over filtration provided a view from the ground-up of the powerful political and economic forces that shaped the relationship between people and nature in New York City. In this research I focus on the Coalition's efforts to confront the diminishing public oversight of the water system, the close connection between the development of water resources and real estate development, and the influence of special interests such as the construction industry. By concentrating on the efforts of the Coalition, rather than on these forces themselves, I hoped to reveal the obstacles to opposition as well as the potential for agency on the part of people who choose to challenge such forces.

In this account I focus on a series of turning points in the controversy in which the Croton Coalition was involved. By recounting the story of what happened at each turning point, I provide a chronological account of the controversy from the point of view of the Coalition. At the same time, these turning points also provide me with opportunities to explore issues related to the political ecology of the New York City water system, the obstacles to the consideration and implementation of environmentally sound policies, and the role of grassroots activism in this process. This is not an exhaustive account of the controversy, as will become clear. There are other organizations that were involved, and I emphasize turning points of relevance to the Croton Coalition.

The rich story of the Croton Coalition could provide material for several studies of related questions of significant interest. For example, the Coalition was an example of a growing phenomenon of grassroots environmental coalitions that differentiated themselves from the organizational style and tactics of national, professionalized environmental organizations (Schlossberg, 1999). The characteristics and activities of

the leaders of the Coalition could provide the material for a fascinating study of grassroots activists (Glazer & Glazer, 1998). Questions of inter-personal conflict and management style within grassroots organizations were also raised by the history of the Coalition. However, this account focuses on the issues of power and agency of grassroots activists that are central both to my research, and to political ecology.

The first turning point, which I refer to as “Joining Forces,” is the formation of the Croton Coalition. There were two main groups in the Coalition, the activists representing Bronx organizations and those representing organizations in the watershed communities. The activists in both groups initially became involved because of issues that concerned their local communities. For Bronx groups the primary motivation was opposing the siting of the filtration plant in their neighborhoods. The spur to action for activists from the watershed communities was more varied. Although there were some activists, such as those from Yorktown, who became involved when a site in their community was proposed for the filtration plant, the motivation for most of the activists from the watershed communities was related to curtailing development in their communities by calling for watershed protection. These local concerns played an important part in how the Coalition evolved over time. Focusing on the formation of the Coalition will allow me to explore the issue of the regional scale of the watershed and the Coalition’s attempt to match that scale. The obstacles presented to democratic participation and environmentally sound management resulting from this scale will also be explored.

The second turning point that I will examine is the selection of the Mosholu site in Van Cortlandt Park for the filtration plant, and the Croton Coalition’s response. I have

titled this section, “A Hoodwinked Neighborhood.” As has been noted, New York City considered numerous sites for the Croton filtration plant. Jerome Park Reservoir was eliminated from consideration due to community opposition. The selection of the Mosholu site was perceived by the members of the Croton Coalition, and many residents of the neighborhood adjacent to the site, as an example of environmental injustice. Construction of the filtration plant at this site entailed encroachment on parkland, and negative effects on air quality from blasting and truck traffic. Neighborhood residents already suffered from a high rate of asthma.

At this point in my account I will pause to examine the Croton Coalition’s ongoing activities on behalf of watershed protection, undertaken “Inch by Inch.” The Coalition was involved in such varied activities as mapping sites of problematic stormwater overflows, opposing construction of new roads and homes, and fighting proposals for diversion of sewage from treatment plants that discharged into the watershed. These activities raise questions about the comparative worth of tactics at different geographical and time scales as methods to achieve environmental progress.

The third turning point, titled “Diverging Interests,” is the Croton Coalition’s success in stopping the NYC DEP from testing a treatment for the water supply that was proposed as an alternative to filtration. The NYC DEP proposed to test this treatment, which involved adding aluminum sulfate as a coagulant to the water as it flowed from the Muscoot reservoir to the Croton reservoir, without a complete environmental review. Although this process might have been an alternative to filtration, it posed risks for the ecosystem of the reservoir which is a living lake. Although the Coalition claimed the defeat of this proposal as a victory, it caused a rift between the Bronx groups and the

watershed groups. This incident reveals a common dilemma in responding to environmental problems that are complex and interrelated. While the Croton Coalition tried to change the terms of the debate about filtration to emphasize prevention, the regulatory system's emphasis on treatment led to a situation in which the interests of different groups within the Coalition were in conflict. This incident, which I interpret as presaging the later dissolution of the Coalition, highlights the difficulties involved in maintaining a regional alliance.

The fourth turning point, "The Walkout," is the dissolution of the bonds between the Bronx and watershed contingents. Most of the Coalition member groups from the Bronx left the Coalition after the president, Marian Rose, began to advocate for another alternative treatment for the water supply. This treatment, using chlorine dioxide, would have required the use of facilities in the Jerome Park Reservoir. This move alienated the leader of the Bronx groups, Karen Argenti, who led the groups out of the Coalition.

Around the same time that the Bronx and watershed contingents went their separate ways, the opponents of the filtration plant obtained a court ruling that halted the planning for the plant at the Mosholu site. The court required New York City to obtain special legislation from the New York State Legislature allowing use of the Mosholu site. At first it seemed that the City might not be able to obtain this legislation, however in the end the legislature did pass the necessary bill. The fifth turning point, "Divide and Conquer," is the political struggle over this legislation.

I argue that an important factor in determining the Coalition's room for maneuver was that while there were constant battles over specific projects, including the plant itself, there was no real forum for addressing the larger issues of protection and management of

the watershed as a whole. This turning point, “Divide and Conquer,” sheds light on the engagement of the Coalition in the political process, as well as the challenges raised by the process to the maintenance of a unified position by the Coalition.

First Turning Point - Joining Forces

Karen Argenti initiated the organization of what became the Croton Watershed Clean Water Coalition in 1996. Argenti became involved in the filtration issue because she was a politically active resident in the neighborhood surrounding Jerome Park Reservoir in the Bronx. New York City pursued a plan to build a filtration plant at the Jerome Park Reservoir in the 1980s. This plan was shelved, and then revived in a different form in about 1991. In 1996, as a result of opposition in the neighborhood of the site, planning for the plant was temporarily suspended. Mayor Giuliani agreed to reopen the siting process and consider alternative locations for the plant.

While the NYC DEP worked on identifying alternative sites, Argenti had one year to attempt to derail the plans for the plant. While hopeful that the City would at least choose an alternate site, Argenti was pursuing multiple strategies. Information provided by the NYC DEP and consultations with scientists had led her to believe that the waters of the Croton watershed might be clean enough to justify delaying construction of the plant, or perhaps to avoid construction of the plant altogether. Aware that one argument for filtration was that there was “no political will” to protect water quality in the watershed communities, Argenti thought that it might be possible to undermine this argument by organizing people in the watershed to demonstrate that there was a

commitment to watershed protection. If the watershed could be protected, there would be no need for a plant.

After we finished organizing Jerome Park – we had meetings with thousands of people and scared the political officials...Giuliani decided to look at the siting and gave us a year. He did move it out of Jerome Park, but it wasn't guaranteed, so we had a year. The next step was, 'let's decide whether we need the plant. I knew they had said that they didn't have the political will in Westchester and Putnam, so I said 'I'll get those people together. I'll organize Westchester and Putnam.' I thought they were talking about the people. Of course really they were talking about this higher level of politics. (K. Argenti, interview, May 6, 2004)

Argenti was well prepared to take on this challenge. She had served as chairperson of Community Board 7 and had worked for both a state senator and for the Democratic Party. As she told me, "I understood how to organize. I was on the other side and knew how it worked" (K. Argenti, interview, December, 2000). She was a founding member of The Friends of Jerome Park Reservoir and of the Jerome Park Conservancy. Argenti approached John Klotz of the Sierra Club for help. Klotz introduced her to Frank Eadie, chair of the Sierra Club New York City Group watershed committee, and a meeting was organized that took place at the Natural Resources Defense Council (NRDC) headquarters. Frank Eadie, believing that Westchester County was crucial to the protection effort, recruited Marian Rose, a Sierra Club member and an experienced environmental activist in Westchester, to participate. Marian Rose hosted the founding meeting of the Croton Coalition in her home in Bedford.

In defining the scope of the Coalition's activities, the decision was made to focus only on the Croton, rather than on both the East of Hudson and West of Hudson systems. The group from the Bronx was motivated first and foremost by the need to avert construction of the filtration plant - and the plant was needed because the Croton supply had to be filtered. In addition, the participants agreed that many other organizations were now focusing on the West of Hudson watershed as a result of the New York City Watershed Memorandum of Agreement (MOA), signed in 1997. In particular, several well-established organizations with considerable resources, such as the Natural Resources Defense Council (NRDC) and Riverkeeper, were monitoring the implementation of the New York City Watershed MOA. The new coalition would focus on the Croton exclusively (F. Eadie, March 12, 2004).

The Croton Coalition also had to decide on its policy on the construction of the filtration plant. The Coalition adopted the policy of advocating for a "dual track" approach on the part of New York City. Their stand was that filtration might not be necessary, so the City should proceed as if it could be avoided by pursuing watershed protection, while at the same time satisfying the US EPA by continuing to plan for a filtration plant. In this way New York City would be prepared in the event that the filtration plant was eventually needed. This stance quickly garnered support from organizations that had been involved in opposing the plant at the Jerome Park Reservoir, from Sierra Club groups and a few other watershed organizations. The first brochure [undated] of the Croton Coalition listed 25 organizations, one third watershed organizations and two thirds New York City organizations (of whom five were Sierra Club chapters and groups), representing 100,000 members, as supporters of the Coalition.

To understand how the Croton Coalition's membership and policies evolved it is important to understand the different backgrounds and motivations of the people from the organizations from the Bronx and those from the watershed communities. The Croton Coalition was an alliance among people approaching the filtration issue with different concerns and from different perspectives. It is necessary to go back in time before the founding of the Croton Coalition to understand their different perspectives.

When the Croton Coalition was formed, the core of the Bronx contingent was organizations from Argenti's neighborhood surrounding the Jerome Park Reservoir. The Jerome Park Reservoir was completed in 1906 as a distributing reservoir for the Bronx. It is the terminus of the New Croton Aqueduct, where it connects to the distribution system. The New Croton Aqueduct is the oldest of New York City's three major aqueducts. The Jerome Park Reservoir is still in use today. The Reservoir had been proposed as the site for a filtration plant as far back as 1905. Land was set aside at the site for the purpose of constructing the filtration plant along with a covered reservoir for finished (treated) water. (The fact that only half of the planned reservoir was ever constructed is obvious with a glance at a map of the area.) Eventually the unused half of the reservoir site became the home of several educational institutions, including the Bronx High School of Science, John F. Kennedy High School and Lehman College (Galusha, 1999). Plans for a filtration plant at the Jerome Park Reservoir were revived several times after 1970, and in the 1980's New York City built a pilot filtration plant. This construction project involved blasting, much of which took place at night to avoid disturbing classes at the schools nearby, that raised the residents' sensitivity to any future

construction proposals. Around 1991 New York City began to make plans to construct a filtration plant in response to new federal regulations requiring filtration.

The Friends of the Jerome Park Reservoir spearheaded opposition to the proposed filtration plant following a 1993 scoping hearing for the environmental impact statement for the project. (Scoping is the procedure for determining what will be covered in the environmental impact statement.) In 1994 the Jerome Park activists persuaded the NYC DEP to hire a consultant for a community advisory committee. The meetings of the Community Advisory Council (CAC) were very important because the participants gained access to information about the water system which previously was not available to the public. They also met with scientists and educated themselves about water quality (K. Argenti, interview, May 6, 2004). The priority of the groups from the neighborhood surrounding the Reservoir was that no plant be built at Jerome Park Reservoir, and that the Reservoir should become a park. In the course of their investigations, they discovered that the Kingsbridge neighborhood next to the Reservoir, and perhaps the Reservoir itself, was designed by Frederick Law Olmstead. They unsuccessfully sought landmark status for the Reservoir (Moss, 1998b), although they did eventually succeed in having the Reservoir named to the State and National Registers of Historic Places (“Reservoir Named,” 2001).

The organizations in the neighborhoods surrounding Jerome Park Reservoir held community meetings, organized rallies, lobbied government officials, and in 1995 hired an attorney and threatened legal action. My sources in the Bronx all agreed that the neighborhood around the Reservoir was particularly well-positioned to mount the campaign against the siting of the filtration plant because of the type of housing and

institutions located there. “It was a unique community. A bunch of co-op complexes in which each building is organized. We were threatened in property values. It was easy to get to everybody through the neighborhood association, co-ops, etc. We could pick it up and sew it together. They [the DEP] were shocked” (K. Argenti, interview, December, 2000). The co-op buildings of the Amalgamated Houses are located on and near the Reservoir. The educational institutions had many resources as well as 25,000 (according to Argenti) students that could be tapped for the campaign. In 1995, 5,000 students came out to circle the reservoir in a protest rally. Some credit the influential teachers’ union and alumni association of Bronx High School of Science for forestalling the plant (P. Sawyer, interview, December 10, 2004). In the face of sustained opposition, the NYC DEP backed off from their plans for that site (K. Argenti, personal communication, December 12, 2000).

In addition to the Jerome Park organizations, other New York City organizations that had joined the Jerome Park campaign eventually became part of the Croton Coalition. Several nearby neighborhoods had organizations that were part of the Northwest Bronx Community and Clergy Coalition (NWBCCC), which is active in ten neighborhoods. The Mosholu South Community Coalition and the Bedford Park Organizing Project were two that were active. There were also several people who had been involved in water supply issues prior to the negotiation of the New York City Watershed MOA, such as David Ferguson who brought in the Housing Development Fund Cooperative Coalition, and Carl Schwartz representing the Friends of Clearwater (Carl Schwartz, personal conversation, December 9, 2004).

In the watershed, the original core of the active members of the Croton Coalition came either from the Sierra Club or from Yorktown. In late 1996, when the NYC DEP proposed a site in Yorktown for the filtration plant, Paul Moskowitz was president of his neighborhood's community association in Huntersville, an area of Yorktown adjacent to the New Croton Reservoir. Moskowitz and others in Yorktown organized a group called Friends of the Croton Watershed. Of the nine watershed organizations that were original members of the Croton Coalition, three were from Yorktown and four were from the Sierra Club. The remaining two were the Central Westchester and Scarsdale Audubon clubs. Moskowitz describes how his community became involved for reasons similar to those of the community around Jerome Park Reservoir:

We formed our own local group to oppose the building of the filtration plant in the town of Yorktown. And it's for many of the same reasons that the people at every other site have opposed building a filtration plant. There are the problems of traffic, noise, pollution. In addition we have our Turkey Mountain Park, which is on the North side of the reservoir which overlooks their site and of course if you have a park and a mountain, the thing about the mountain are the views [which would have been ruined]... (P. Moskowitz, interview, April 4, 2004)

However, beyond the opposition to particular sites, the Croton Coalition activists quickly began to become involved in the issue of watershed protection. As Argenti had envisioned, the Coalition activists demonstrated that there were people in the watershed who were motivated to protect it. Early on it became apparent that there were many people in the watershed communities who could be mobilized to protect the watershed because this agenda dovetailed with other local concerns. As Paul Moskowitz put it,

“When you are involved in local politics, it means environmental politics. Because that is what you are fighting for, the environment in which you live...community politics is environmental politics” (P. Moskowitz, interview, April 4, 2004). As the Croton Coalition grew, it engaged people who were involved specifically in water issues, such as protection of the Great Swamp (headwaters of the Croton River), threats to the Kensico Reservoir from the Westchester Airport, and sewage issues, but also people who realized that over-development in general could be put in the larger context of the watershed.

Ann Fanizzi, a board member from Putnam County, described herself in these terms:

At the CWCWC meeting I was totally bored, they were talking about milligrams and milliliters, it seemed impossible to understand. I love science, originally wanted to be a nurse, but this stormwater seemed like minutiae. But I came to see the light and how integral it all is to my work – the role the watershed plays – I was going after developers but this gave me a larger context – an ethical context. I tried to get more involved – mostly listened to get to know the vocabulary – this physics and chemistry is not my thing. But I admired Marian and the others in CWCWC so much. I saw the centrality of the plan to protect the watershed and the connection to my plan to protect open space. (A. Fanizzi, interview, January 1, 2004)



Illustration 7
Ann Fanizzi
Croton Watershed Clean Water Coalition board member
December 7, 2005



Illustration 8
Paul Moskowitz
Croton Watershed Clean Water Coalition board member
December 7, 2005

The Croton Coalition pursued the two agendas of stopping the construction of the filtration plant and increasing the level of watershed protection simultaneously. In the spring of 1997, shortly after the formation of the Croton Coalition, the US EPA and NYS DOH filed a lawsuit against New York City to force it to comply with the Surface Water Treatment Rule and build the filtration plant. The Coalition asked for standing to intervene in the suit. The Coalition argued that the stipulation signed by New York City, in which it committed itself to build the Croton filtration plant, should not be legally binding because the City had not complied with requirements for public participation in this decision. John Klotz, an attorney and Sierra Club leader, was hired to represent the Coalition in this litigation. The suit went on for three years, but was not successful.

At the same time, the Croton Coalition was opposing development in the watershed that could influence water quality. The first Coalition newsletter, published in fall of 1997, included articles about opposition to a multiplex cinema to be built in the northern Westchester town of Southeast, a subdivision in Hunter Brook, and widening of Route 120 and Route 22 by the Kensico Reservoir. The newsletter also included a list of 36 proposed development projects in the Croton watershed. The articles emphasized that New York City residents, representing the Coalition, joined local residents in objecting to these developments at planning board meetings about these matters (CWCWC, 1997).

In analyzing the significance of the formation of the Croton Coalition, I have found it helpful to introduce the concept of scale as used by critical geographers. These scholars have suggested that understanding how scale is produced can help to illuminate processes of the production and manipulation of nature (see Chapter 1 and Bakker, 1999; Silvern, 1999; Herod, 1997; McGuirk, 1997; Smith, 1992). In establishing the Croton

Coalition, the participants were redefining the scale at which the filtration plant was significant, engaging in a process of arbitration and struggle to create new scales of landscape and politics associated with the New York City watersheds. Most obviously, the founders of the Croton Coalition were rejecting the definition of the problem as one of a single neighborhood where the filtration plant was to be located. By redefining the problem as a regional problem, they were “jumping scale” to mobilize additional resources to assist in the struggle.

The struggle over filtration of the Croton water supply reveals how the definition of scale is a reciprocal and mutually constituted process carried out through attempts to use scale as a tool in accomplishing various political objectives. Examining these attempts, on the part of both the Croton Coalition and the NYC DEP, may help us to understand the conflict over filtration. Both sides defined and redefined the conflict at various scales that, at different junctures, both narrowed and expanded the bounds of the conflict.

The background to this conflict was the history of New York City’s creation of the “New York City Watershed,” an entity which did not exist prior to human intervention. In a 150-year process, New York City developed a new hydrological scale by combining water from the Croton, Catskill and Delaware watersheds in a “super-watershed” to supply nine million people. On the level of physical/material practice, the waters from the Catskill and Delaware watersheds are actually mixed in the Kensico Reservoir, located in the Croton watershed, before being delivered to New York City. New York City’s wastewater is then discharged into the Hudson, East River and Atlantic Ocean far from where the water was extracted. Most recently, in the New York City

Watershed Memorandum of Agreement, the City had reinforced the notion of the watershed as a unified landscape by applying uniform regulations. The paradox is that although in this context, the filtration of the Croton supply appeared as a mere footnote in the bigger story at a higher scale, by applying the policy of filtration to the Croton watershed, New York City was also differentiating the Croton watershed.

The Croton Coalition's stand was similarly paradoxical. On the one hand, the Croton Coalition's focus on the Croton watershed and its particular characteristics can be understood as a call for knowledge and understanding of the individual watershed at a local, intimate level. It is reminiscent of the ideas of bioregionalism, which calls for political boundaries and decision-making to reflect the bounds of ecosystems such as watersheds (Dryzek, 1997; Nelson & Weschler, 2001; Sale, 1985 also see Kemmis, 1990 on the importance of place to environmental politics). In advocating for watershed protection in the Croton, the Croton Coalition was arguing that the Croton watershed should be evaluated on its own terms – not according to one-size-fits-all regulations or according to the political calculations involved in avoidance of filtration for the Catskill and Delaware watersheds. However, at the same time, the Croton Coalition was asking that the same policy that was applied to the other watersheds be applied to the Croton.

I would argue that the most significant aspect of the Croton Coalition's foray into the politics of scale was their articulation of a vision of the Croton watershed as a unit of significance to the public. It is not surprising that they encountered difficulties in defining exactly what this meant in terms of both boundaries and policies. All ecosystems are nested one within the other, and the boundaries of watersheds are frequently contested (Rhoades, 2000; Ruhl, 2000). What is important is that the Croton

Coalition defined the Croton watershed as a place of common habitation that merited the common concern of citizens in the communities where the water was extracted and in New York City where it was used.

Second Turning Point –A Hoodwinked Neighborhood

After Mayor Giuliani agreed to reopen the siting process for the filtration plant in early 1996, seventeen sites in the Bronx and Westchester were proposed by NYC DEP, and seven were chosen for inclusion in the plant's environmental impact statement. The new list contained several sites in Van Cortlandt Park. In May, 1998, at the end of the comment period for the scope of work for the environmental impact statement, the NYC DEP added an eighth site to the list. This was the Mosholu Golf Course site, which was in Van Cortlandt Park and very close to the Jerome Park Reservoir. The residents of Norwood, the closest neighborhood to the site, were thus taken by surprise when they learned that the plant might be built in their immediate neighborhood (Moss, 1998a).

On December 1, 1998 the DEP announced that it had selected the Mosholu site for the plant. The selection of the Mosholu site changed the dynamics of the controversy significantly. When I made my first visit to the neighborhood, I found it very surprising that the selection of the new site could have made such a big difference in the politics of the controversy. Both the Mosholu site and another site under consideration known as Shandler Field were actually very close to Jerome Park Reservoir. But because of the micro-geographies of the Bronx and the effect of Van Cortlandt Park, each site was in a different neighborhood.

Norwood was a low income primarily minority community located in Bronx Community District 7. This district had a total population of 128,500 in 1990; 65,000 of

whom were of Hispanic origin and 22,000 of whom were Black. Between 1980 and 1990 the Hispanic population increased by almost 67% (New York City Department of City Planning, online). In a Norwood News article, City Councilwoman June Eisland, described the neighborhood as “primarily populated by working class and predominately minority residents, who together with a major teaching hospital, have struggled for years to attain stability in the housing stock, business district and quality of life” (Moss, 1998c). State Assemblyman Jeffrey Dinowitz, an opponent of the filtration plant, told me,

...I think there was a deliberate decision made by the city to withdraw the plan from the Jerome Park Reservoir and ultimately to go into the southeast corner of Van Cortlandt Park because they believed they'd have a greater chance of overcoming the opposition in that neighborhood. And to me that's where the issue of environmental racism comes in, because in some people's mind they thought it was a minority community that would be harder to organize, and they were right on both counts. The Amalgamated (near the Jerome Park Reservoir) has a long-standing tradition of political activism, and it's also a concentrated bloc...in Norwood you had a more transient population, many that did not speak English as their first language... I said that we can't allow them to divide and conquer and that has been the strategy of the DEP for many years (J. Dinowitz, interview, July 25, 2005).

Opponents of the plant also emphasized that the area immediately adjacent to the proposed plant was occupied by a particularly vulnerable population. According to Fay Muir, a community activist and a Croton Coalition board member, the neighborhood as a whole had demographics not that different from those around the Jerome Park Reservoir,

but the area closest to the site known as Knox Gates was an area of small apartment buildings of low-income and primarily Spanish-speaking residents (F. Muir, interview, December 4, 2000). After the new site was announced, Ann Marie Garti, one of the leaders of the opposition to the siting of the plant in Jerome Park Reservoir, was quoted in the New York Times about the selection of the new site. She said, “I feel guilty, I feel bad. These are like the poorest people in the City. It’s that kind of poverty. I should be happy and I’m not” (Martin, 1998).

Although the residents of Norwood may not have been very organized or influential, the selection of a site within Van Cortlandt Park did provide new options for opposition to the plant. The selection energized allies from the community of people concerned with the protection of New York City parks, especially the Friends of Van Cortlandt Park. This organization, with a base of supporters in the more affluent and politically influential neighborhood of Riverdale had some resources with which to oppose the plant.

Park advocates raised the possibility that the Mosholu site could be opposed on the basis that New York State law required an act of the state legislature for parkland to be used for another purpose. A NYC DEP spokesman told the Norwood News that the agency had determined that legislation was not necessary, arguing that the plant would be underground and the roof of the plant would be returned to park use as part of the golf course (Moss, 1999). However raising this legal issue, referred to as “alienation,” was identified as the most promising avenue for stopping the project. Once this issue was raised, many of the opponents of the plant were certain that they would prevail. As the Norwood News reported, [Assemblyman Jeffrey “Dinowitz predicts the proposal’s

certain demise. Though park alienation bills routinely sail through the legislature on the last day of each legislative session (the assemblyman says he is one of the few that reflexively votes against all of them) Dinowitz predicts his colleagues in the Assembly will follow his lead since Van Cortlandt Park is in his district” (Moss, 1999).

Meanwhile, it began to appear that the most likely strategy for derailing plans for the plant to be built in Van Cortlandt Park was to force New York City to try to obtain alienation legislation. The Croton Coalition board wanted to file a lawsuit on this basis, but as a matter of legal strategy feared that it might be viewed as pursuing contradictory aims to its earlier lawsuit questioning the need for filtration altogether. Consequently in October 1999 the Croton Coalition along with other community organizations in supported the formation of a new community group, Norwood Community Action, for the sole purpose of suing New York City. This suit was combined with a suit brought by Friends of Van Cortlandt Park, and was joined by the State of New York under the direction of Elliot Spitzer, New York State Attorney General. Spitzer agreed that New York City should have sought the approval of the legislature for the alienation of parkland.

Throughout this period, while the legal process was underway, the Croton Coalition supported efforts to raise awareness and mobilize support for their position against filtration. David Ferguson, a leader of the Croton Coalition from New York City, developed comic books in English and Spanish that were distributed in Norwood. The Croton Coalition produced a video, “The Fight for the Croton Watershed: Protection vs. Filtration” (Rose Films Inc, 1999), and hired an architectural renderer to create an illustration of how the filtration plant would appear from street level. (The NYC DEP

illustrations depicted the plant from the air, minimizing the height of the wall as it would appear from the street.) The Coalition simultaneously opposed the siting of the plant in Van Cortlandt Park, while trying to keep the idea of non-filtration alive as a policy alternative. On June 6, 1999 the Coalition issued a report on the high cost of filtration and its potential impact on water rates. The Coalition also worked with the Sierra Club to obtain support from Hillary Rodham Clinton, then running for the United States Senate, for its position against filtration (Friedman, *The Riverdale Press*, August 3, 2000). In February 2001, hoping for a hearing from the new federal administration, the Coalition sent a letter to US EPA Administrator Christie Todd Whitman asking the US EPA to reconsider the consent decree under which the City was required to move ahead on building the filtration plant.

On February 8, 2001, the suits brought to force New York City to seek alienation legislation permitting use of the Mosholu site were successful. NYC DEP had to seek legislation permitting use of the park site for the filtration plant. The opponents of the filtration plant celebrated this decision as a significant victory. Realizing that it would be impossible to meet the deadlines, New York City negotiated a supplement to the consent decree on December 12, 2001 obligating itself to evaluate two additional sites for the filtration plant while it pursued legislative approval for the Mosholu site. One, the Harlem River site, was in the Bronx. The second, the Eastview site in Mt. Pleasant, was in Westchester County.

As we have seen, the selection of the Mosholu site for the filtration plant brought the issue of environmental justice into the controversy. Neither the filtration controversy nor the Croton Coalition's campaign fit neatly into the environmental justice framework.

I explore the question of environmental justice here because this framework helps to illuminate certain aspects of the controversy. I also suggest that the influence of ideas from the environmental justice movement can be discerned in the Croton Coalition's positions.

Over the course of the controversy several different arguments were advanced by the Croton Coalition under the general heading of environmental justice. First of all the Croton Coalition drew on the most common understanding of environmental justice – that there is a pattern of discrimination in the siting of noxious facilities and displacement of environmental burdens on the poor and racial minorities. On a most basic level, the Mosholu site seems to have been selected in part because the people in the Norwood neighborhood were perceived to be less powerful than those in the vicinity of Jerome Park Reservoir. As we have seen, many activists were convinced that the NYC DEP had made the political calculation that the community around the site would not be able to organize sufficiently to prevent the building of the filtration plant. Of course other factors involved as well, such as the site's proximity to the Jerome Park Reservoir which is the terminus of the New Croton Aqueduct.

Many environmental justice struggles have been occasioned by the presence or potential for siting of toxic waste disposal facilities and concerns about their influence on the health of local residents. In Norwood, concerns focused on predictions that construction would cause an increase in asthma in the neighborhood. The Bronx already had very high rates of asthma due in part to the presence of many highways and bus depots. The dust and pollution from trucks during construction of the filtration plant was expected to exacerbate the symptoms in the many afflicted children in the area (Moss,

1998c). In addition, the plant would deprive the neighborhood of use of a nearby area of parkland. Van Cortlandt Park was already criss-crossed with highways which both limited access to many areas of the park and contributed to air pollution. The construction of the filtration plant would further diminish access for residents of Norwood. An article in the Norwood News captured the sentiment of the neighborhood with respect to the park with the title, “Déjà Vu All Over Again: City Has Disrupted Park Many Times Before” (Corey, 1999). Opponents of the plant also argued that the plant would cause economic hardship, and that residents would flee the neighborhood. In Muir’s words,

Our concerns are that they will be blasting through bedrock over 23 acres, down 80 feet. They say it will be a minimum of 18 months and they will crush rock on site. There will be no peace in the neighborhood. Hordes of rats that live in the park will flow out. It will be unlivable because of the dust. Asthma rates are already terrible. After it’s built it will be a massive expanse of grass. In a drought what will that look like? I doubt they’ll use water for that! It will be 30 feet up. Right now we can walk in and take a walk. Who will climb up that thing? We will lose the trees. We won’t see what’s left – we’ll just see the mound. We don’t have access to the rest of the park because it is cut through by three highways. We can’t get to the other side from our neighborhood. This little area is all we have of the park. We have a playground there...after it is built there won’t be much of a neighborhood left, but just an active industrial area in the park. How can we send children there with the trucks? For us it’s pretty bad.

Not much will be left. Everyone will move out. (F. Muir, interview December 4, 2000)

These concerns raise issues of both distributional and procedural inequity as discussed in Chapter 1: Distributional inequity because the community was already overburdened with more than its share of noxious facilities, and procedural inequity because the procedures in place for making the decision provided little opportunity for the community to influence the decision (Faber, 1998a). The community was surprised by selection of the site and did not have time to organize sufficiently to avert the transfer of the plant from the nearby Jerome Park Reservoir. This problem was exacerbated by the fact that the NYC DEP did not provide opportunities for public participation in Norwood as extensive as those that they had provided when the plant was proposed for Jerome Park Reservoir.

The opponents of the plant in the Croton Coalition and in the neighborhood faced an uphill battle in making these arguments about the plant. Paul Sawyer, the director of Friends of Van Cortlandt Park, told me that when he raised the issue of environmental justice with politicians, they told him that it was not an environmental justice issue because it was neither about health nor about jobs – just about a park (P. Sawyer, December 6, 2004). Perhaps because what was proposed was a water treatment plant, it was not obvious why such a facility would be unhealthy. The Croton Coalition pointed out that construction would be very polluting, and operation would involve transport of chemicals and discharge of wastes, but this did not seem to garner much attention beyond the immediate neighborhood. The issue of the alienation of land in Van Cortlandt Park

attracted some support from organizations of other parks, but many people did not see the alienation of parkland as an environmental justice issue.

The filtration plant did not quite fit into the common understanding of a noxious facility, but perhaps equally problematic was that most of the activists of the Croton Coalition were white and many were from Westchester and Putnam Counties, especially after the Bronx groups left the Coalition. The environmental justice movement is defined in large part in terms of its constituency. While some have extended the boundaries to include people oppressed because of class and other identities, the environmental justice movement has been commonly defined by the racial identity of its participants and as a response to environmental racism. While I would argue that white residents of a relatively wealthy upstate community can be environmental justice activists, it is important to note the emphasis that the environmental justice movement places on social location as a factor in how people conceive of the environment. The movement's activists and scholars point out that people in a sub-altern social location experience and frame problems differently from those whose social location provides them with protection from environmental injuries (Pulido, 1996). Thus examining the constituency of the Croton Coalition, and how different board members approached the filtration controversy, may be useful in understanding how the Coalition framed the controversy as an environmental justice issue.

Within the Croton Coalition two activists, Fay Muir and David Ferguson, were particularly involved in making arguments about the environmental injustice of the plant. Both of these activists had been involved in organizing in low-income communities and coalitions prior to their participation in the filtration issue. They both remained active in

the Croton Coalition after most of the New York City-based groups from the Bronx left the Coalition in 2001. Although, as low-income urban residents, Muir and Ferguson were in the minority within the Croton Coalition's leadership, they were very much present and respected participants. It may be because of their involvement that the Coalition did focus on the environmental justice aspect of the filtration controversy. At the same time, the fact that most of the Coalition activists hailed from the watershed communities may explain why environmental justice remained a less prominent argument in the Coalition's campaign.



Illustration 9
Fay Muir and Marian Rose
Croton Watershed Clean Water Coalition

Fay Muir was the only Croton Coalition board member of color, and the only one who actually resided in Norwood. Muir was an immigrant to New York City from Jamaica. She fled Flatbush, in Brooklyn, for the Bronx because she was worried about her child's safety, and raised him as a single parent while working for Montefiore Hospital which is located in Norwood. Muir became involved in community organizing through the Northwest Bronx Community and Clergy Coalition (NWBCCC). She was facing being laid off from her job when she decided to retire, whereupon she became very involved in the filtration issue. As she said in 2000 when she was one of the plaintiffs in the Norwood Community Action suit, "I have been involved for six years, I've learned so much and met so many wonderful people. I can't imagine what my life would be like without this. This took over. Now I have a one-track mind. Being downsized was a blessing. I would not have been able to do this on this scale. I'm very grateful that I'm able to do it." Muir's assessment of the thinking of the NYC DEP in siting the plant at

the Mosholu site was succinct. She felt that the NYC DEP had chosen the site because they had no respect for the residents of her neighborhood, she summarized the thinking of the DEP as: “Who cares about poor minorities anyway? Just put them in a program, and 90% are probably cheating! That’s what they say” (F. Muir, personal communication, December 4, 2000).



Illustration 10
David Ferguson
Croton Clean Water Coalition Board Member
December 7, 2005

David Ferguson was an activist with the Housing Development Fund Cooperative Coalition (HDFC Coalition), an organization that represented residents in limited equity cooperative buildings. These buildings became cooperatives as part of a New York City program created to address landlord abandonment of low-income housing in the late 70's and early 80's. Ferguson was a poet and playwright who had earned his living before retirement as a house-painter, and served as the part-time superintendent of his building. As a tenant leader and eventually owner of a coop in a building in Chelsea, Ferguson was very concerned about the rising water rates in New York City. He had become a passionate activist addressing water issues as a representative of the HDFC Coalition. In addition to representing the HDFC Coalition in the Croton Coalition, Ferguson was the most prolific writer on behalf of the Coalition, and the editor of the newsletter. He also made several videos about the Croton controversy, drawing on the 600 videotapes that he recorded at meetings and hearings.

As an activist on behalf of the residents of low-income housing across New York City, Ferguson originally became involved in water issues around 1994. He argued that filtration was an environmental justice issue because construction of the plant would lead to increased water rates and thereby place a disproportionate burden on low income New York City residents. As David Ferguson explained, "low income people are subsidizing developers to clean up their dirt" (D. Ferguson, interview, November 26, 2000). This issue was raised in the first brochure of the Croton Coalition around 1997, and I suspect that it reflected Ferguson's understanding of the relationship between water and housing issues (see HDFC Coalition, 2000). In 1999 the Croton Coalition commissioned

Anthony Blackburn (1999), an economist, to produce an analysis of how the cost of filtration would influence low-income housing in New York City, finding that under the current rate system, rising rates as a result of filtration could reduce the net operating income of buildings with lower-income tenants and possibly force such owners into default on tax and mortgage obligations, thus undermining the preservation of affordable housing. His analysis also showed that rising rates would have the effect of redistributing net operating income from lower-income to higher-income buildings. This approach, although not directly about livelihood, reflected an intersection of environmental and economic concerns that is characteristic of the environmental justice movement (Pulido, 1996).

In addition to making arguments that drew on an environmental justice framework, the Coalition was organized in a manner that is characteristic of the environmental justice movement – that is as a coalition of organizations and leaders with varied interests and perspectives (Schlosberg, 1999). The Coalition's position that only avoidance of filtration could protect both New York City and watershed residents was a position that underlies much environmental justice organizing. A fundamental issue in environmental justice is the struggle to redefine conflicts over pollution, changing them from locational conflicts, understood at the scale of the neighborhood, to societal challenges at a broader scale (Williams, 1999). It is typical for environmental justice struggles to begin with protests in a single neighborhood and then grow to encompass additional communities (McGurty, 2000; Camacho, 1998; Greenberg, 2000). This is what happened in the filtration controversy. The NYC DEP framed the issue as choosing one site for the filtration plant. The community around the Jerome Park Reservoir

originally saw this as a neighborhood issue. And then the Croton Coalition reframed the issue as a regional one that could be resolved by eliminating the need for the filtration plant. As many environmental justice coalitions have discovered, proposing to solve the problem of pollution through prevention makes it possible to avoid pitting one neighborhood against another.

The concept of environmental justice is helpful in defining the Croton Coalition's opposition to filtration. This multi-dimensional struggle resisted classification. In many ways, it fit the mold of an environmental justice struggle. As a response to the siting of a noxious facility in a poor community of color, it was about fairness, and thus fit squarely into the concerns of the environmental justice movement. On the other hand, the Croton Coalition did not emerge from a sub-altern community. The activists of the Coalition were varied in their identities, and not primarily defined by subaltern or racial identity. They only partially subscribed to an environmental justice agenda. For example, unlike many movements for environmental justice, the Croton Coalition did not explicitly challenge the political framework within which the decisions about filtration were being made (Pulido, 1996; Faber, 1998b; Gould, Schnaiberg & Weinberg, 1996).

The influence of the environmental justice movement on the Croton Coalition may be seen in more subtle ways, such as the way that the Coalition conceived of filtration as an environmental problem. A central idea of the environmental justice movement is the idea that the environment is "where we live, work and play" (DiChiro, 1996). As a struggle about both protecting nature and protecting people, and doing so in both urban and watershed communities, the Coalition's efforts around the filtration controversy may be understood as part of the environmental justice movement's

expanded definition of environmentalism. The Coalition is intriguing precisely because it brought together people with different perspectives and different problems around one solution: Prevent the problem.

Inch by Inch - Protecting the Watershed

Parallel to the effort to stop the siting of the filtration plant, the Croton Coalition was working on protection of the watershed. The Coalition became a key resource for other groups in the watershed concerned about development. At critical turning points these other groups were able to call on the Coalition's board members, and their troops in the member groups, to write letters, make phone calls to the offices of local officials, or show up at hearings. Paul Moskowitz, vice president, describes the Croton Coalition's role in this way:

We have played an organizational role, getting the separate groups together so that we could act together. Most of this has concerned action at public hearings, but also very local issues. That is, any development in the watershed affects the whole system. So in the past, for instance the people in Huntersville have had issues. And it has just been us against the whole government bureaucracy. Now, when local groups have issues with development, we have an organization which spans four counties and we can get experts and people together to help out in local affairs...and also to take legal action if necessary... (P. Moskowitz, interview, April 4, 2004)

Several of the board members were identified with particular development issues. For example, Ann Fanizzi was a former New York City school teacher who moved to Putnam County. She was the chair of the Putnam Open Space Coalition, an organization

she started in order to oppose the sale of a large parcel, Tilley Foster Farms, to developers. This 240 acre horse farm had a stream leading to the Middle Branch Reservoir running through the property (Fanizzi, 2003). Fanizzi became involved in politics in Carmel (a town in Putnam County), particularly in the Green Party and in a proposal to create a bond fund to preserve open space. The relationship between the Croton Coalition and her campaign was typical of many of the other campaigns in which the Coalition board members were involved:

Coincidentally I saw an ad in the New York Times Hudson Valley real estate section that said ‘for sale – Tilley Foster.’ By this time I had been introduced to Putnam. I went to every meeting. I saw right off what this meant. The farm across from me that had belonged to the same family had become a golf course....I called the Open Space Institute and the Trust for Public Land and said, ‘you’ve got to help me’. And they said, ‘who are you?’ So I started thinking of an organization and got that underway.

[Later on...] I was already in the Croton Coalition and I talked about it at a meeting. I said to them ‘it’s on the Middle Branch [reservoir]!’ And they got it. ...Bondi [the Putnam county executive] decided this was an issue and he was going to save Tilley and sure enough he did. He made a deal with the DEP. He had the East of Hudson money [as a result of the MOA]. DEP was a reluctant bridegroom...he had to work a great deal to get it. DEP thought the money was not for land acquisition because the Croton was going to be filtered...

Simultaneously the [Putnam Open Space] Coalition became aware we had to influence land use. We looked at large scale development proposed for

Southeast and Carmel. I went back to the Croton Coalition and said, ‘you must be involved in all these, they all influence the reservoirs.’ Marian, bless her, started coming to planning board meetings, making scientifically based comments. We would have needed to hire experts without her. (A. Fanizzi, interview, January 29, 2004)

According to the Croton Coalition board members, Marian Rose, president of the Croton Coalition was a unique resource for people seeking an orientation to the political and regulatory process and the interpretation of technical information. Rose was a PhD scientist, politically active locally, and leader in the Sierra Club. She became the person to go to for any development threat in the watershed. She provided technical assistance, advice and access to a network of people that could provide assistance and be counted on to show up and speak at public meetings. Another board member, Oreon Sandler, described Marian’s influence,

“...Marian is not involved in other issues... And most people throughout New York City, or at least Westchester, if you have a question about the watershed you go to Marian...She is well respected in the political community too, and in the development community. I sat in her house one night when she had a seminar on ‘Can Environmentalists Get Along with Developers?’ And she had every developer of substance in the County – 50 or 60 people... And when Marian says she wants to do something, the state sends representatives. There was an assistant to the Governor. She has made a major impact on understanding this natural resource in the State, not just the County. (O. Sandler, interview, February 6, 2004)

Paul Moskowitz, the Croton Coalition vice president was involved in opposing the French Hill golf course proposed for Yorktown. This was one of a series of golf courses proposed in the Croton watershed by the Trump Organization (Moskowitz, 2002b). The proposed French Hill Golf Course would have sent runoff into the Croton reservoir (Moskowitz, 2002a). According to Moskowitz, this project was a good example of the complex and often corrupt political situation opponents of development faced. According to Moskowitz, after Trump realized that the site did not have adequate water, he made a deal with the Westchester County Executive to provide water for the golf course from a nearby lake located in a New York State park. The Croton Coalition was able to use its connections to build a network of organizations that could offer support to activists in Yorktown:

What Trump did is make a deal with Westchester County Executive Andy Spano. Near the site is Mohanset Lake in FDR state park. A state park! But the County has a contract with the State which allows them to draw water from the lake to water their own golf course. What Spano agreed to – or at least his deputy Larry Schwartz – was to supply the Trump golf course with water from a New York State Park. Clearly in our eyes an illegal action.

So what we did is we combined local opposition with opposition and technical analysis from the Attorney General, and all the conservation groups from Westchester county and beyond, including the Sierra Club. This put a lot of pressure on the Town Board of Yorktown not to approve the plans for the golf course without proper environmental analysis. So the Croton Watershed Coalition was very influential. Without them I wouldn't have had this window into all the

other environmental groups in the whole region and we might have failed. So this is an example of how small groups of people when organized together can have an influence on events... (P. Moskowitz, April 4, 2004)

The Croton Coalition also took on the task of monitoring the Westchester Airport and opposing the airport's expansion. The water from the Catskill and Delaware water supplies passed through the Kensico Reservoir on its way to New York City. Although the water in the Kensico was from the West of Hudson watersheds, the Reservoir was located in the Croton watershed. Since the West of Hudson watersheds supplied up to 90% of New York City's water, the NYC DEP and others claimed that protection of this Reservoir was of utmost importance. The Kensico was threatened by its proximity to the Westchester Airport, which was only 250 yards away from the Reservoir at some points. This was the second largest corporate airport in the United States. (See Ayres, 2001 for introduction to environmental problems of airports.)

Karen Schultz, a Croton Coalition board member, became involved in this issue because she lived near the Kensico Reservoir in the town of Harrison. Schultz served as chairperson of the Airport Committee of the Sierra Club's Atlantic Chapter. Numerous specific issues that Schultz worked on included clearing of land in the buffer zone around the Reservoir, detection and treatment of groundwater polluted by leakage from underground storage tanks and airport operations, contamination of Blind Brook by stormwater from the airport, and a proposed de-icing facility that would have had the capacity to service three times the airport's current capacity. (A somewhat smaller facility was actually built.) Meanwhile the airport's operations continued to expand as the number of flights and passengers increased, due to growth in private corporate travel

and commuter flights. With more small planes based at the airport, there were more take-offs and landings and increased pollution per passenger (similar to the increased pollution caused by the use of private cars in comparison to mass transportation).

According to Schultz, like the cause of protecting the watershed, the campaign to contain Westchester Airport and to limit its' negative influence on the Kensico Reservoir, was challenged by the complexity of the political context. Federal, state, county and city governments all had a role in regulating the airport. The Federal Aviation Administration's (FAA) goal at this time was to double or triple capacities of airports near metropolitan areas. The Airports Expansion Act (AIR 21) became law on April 5, 2000, budgeting \$40 billion for airport expansion over three years. Under FAA regulations airports were exempt from many pollution reporting requirements imposed on other kinds of facilities (Skolnick, 2000). Schultz mounted a major effort to persuade the Westchester County Board of Legislatures to petition the federal government to grant the Westchester Airport an exemption from requirements to expand. A resolution to this effect was passed in 2003 (K. Schultz interview, December 16, 2004).

In describing her involvement in the campaign to limit the airport's impact on the Kensico Reservoir, Schultz said to me, "The regulatory agencies are sleeping or even allowing pollution. I feel like a gerbil running in circles. I don't know if it is making any difference" (K. Schultz, interview, December 16, 2004). The Croton Coalition supported this ongoing struggle to stop the expansion of the airport and to limit the threat of pollution to the water supply (Schultz, 2002, 2003).

While fighting each of these battles one by one, the Croton Coalition also sought to develop strategies that would address watershed protection more systematically. My

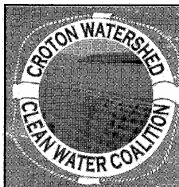
research leads me to place three efforts of the Croton Coalition into this category: The Coalition provided funding for a comprehensive study by Trout Unlimited of sites where stormwater pollution problems could be remediated; the Coalition proposed a critical resource waters designation for the Croton Watershed that would provide additional protection for wetlands; and finally, the Coalition proposed its own management plan for the watershed.

The Trout Unlimited study was a response to the problem of stormwater pollution of the reservoirs. Although inadequate sewage treatment was a concern in the Croton watershed, both government agencies and environmentalists agreed that stormwater was the major problem. Stormwater conveys phosphorus into the reservoirs, which promotes the growth of algae, leading to high levels of organic carbon in the water. In addition to causing eutrophication of reservoirs, high levels of carbon lead to the use of more chlorine than is desirable, potentially causing high levels of carcinogenic disinfectant byproducts (Tierney, 2003). Because the Croton Coalition position was that filtration would not be needed if pollution could be prevented, dealing with the stormwater problem was key to success. In 2000, after the New York State Department of Transportation showed some interest in this issue, the Coalition funded a study conducted by Trout Unlimited that identified hundreds of sites where remediation could prevent stormwater from entering streams and reservoirs (CWCWC, Newsletter 6, November-December, 2001). The Croton Coalition advocated for implementation of the recommendations included in this report over a period of several years. The New York State Department of Transportation undertook some of the improvements suggested in

the report. But the Coalition was disappointed that NYC DEP did not show any interest in this effort (M. Rose, personal communication, May 6, 2005).

One successful strategy adopted by the Croton Coalition in May, 2000 was that the East of Hudson watershed be designated as “critical resource waters.” This designation provides extra protection to water bodies. Certain activities proposed for these waters that are regulated by the Army Corps of Engineers are subject to additional review. These activities, such as dredging and filling in wetlands, are then reviewed individually rather than under the nationwide permit program. The Coalition organized a campaign to persuade Governor Pataki to grant the East of Hudson watershed this designation, which he did in December, 2001. On May 23, 2002 this proposal received final approval from the New York District of the Army Corps of Engineers. The Coalition then offered to recruit volunteers to help with enforcement. Coalition volunteers were trained to monitor water quality in streams and provide the data they collected to the NYS DEC (Feller, 2002).

In an effort to influence the responsible government agencies to address the issue of watershed protection in a comprehensive fashion, the Croton Coalition developed an Action Plan for Protecting the Croton Watershed in 2002. The Coalition revised the plan in 2003, and expanded it into the Croton Watershed Management Plan in 2004. The Management Plan included recommendations for action on land acquisitions, stormwater runoff, wetlands preservation, wetlands mitigation, forests, groundwater and stream contamination, waterfowl management, wastewater treatment plants and infrastructure. The Coalition solicited organizations to support the plan, and as of May of 2004 had garnered support from fifteen organizations (“A Management Plan,” 2004).



Issue 20
MARCH
APRIL
2004

OUR
WATER
OUR
FUTURE

CROTON WATERSHED CLEAN WATER COALITION

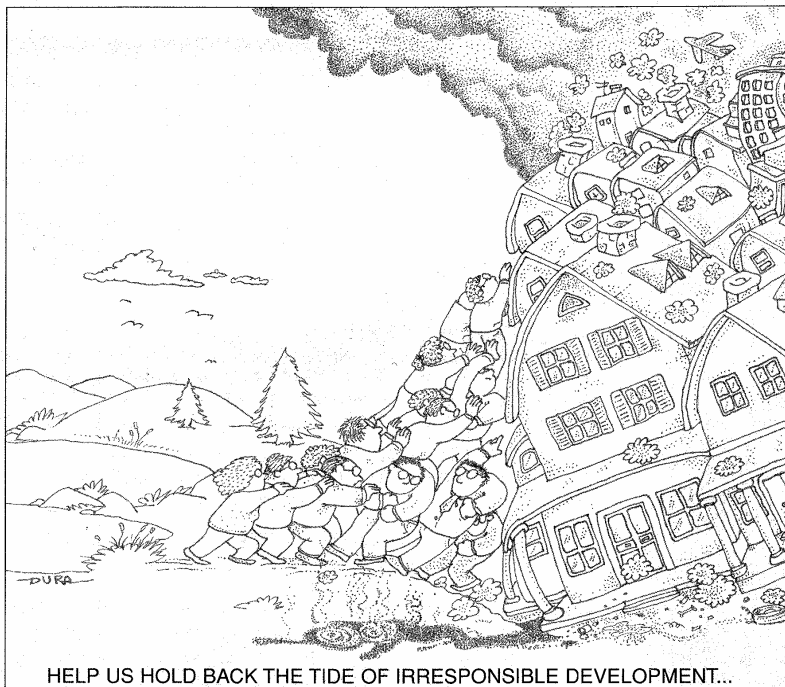


A PLAN TO PROTECT THE CROTON WATERSHED - NOW

Croton water continues to fulfill all state and federal health standards. Despite occasional color violations that are not health-related, Croton water remains high quality. It makes sense to protect the water at its source and prevent its degradation. Indeed, it's the law!

Despite these truths, NYC's Department of Environmental Protection (DEP) is designing a chemical treatment/filtration plant for the Croton as if it were treating heavily contaminated water taken directly from the East River. DEP is throwing in every conceivable technological device (Dissolved Air Flotation; coagulation; flocculation; UV; and an array of chemicals) beyond the filtration mandated by the federal and NYS governments under the 1998 Consent Decree. At a cost of \$1.5 billion, DEP is relying on this "Taj Mahal" of an industrial facility to take care of all anticipated problems with the water—problems that can be avoided with the implementation of a comprehensive watershed management plan.

Unfortunately, the DEP has in place only a half-hearted program to protect the Croton Watershed. A few months ago, amid great fanfare, the Mayor announced an extra \$25 million to buy land in



HELP US HOLD BACK THE TIDE OF IRRESPONSIBLE DEVELOPMENT...

Illustration 11
Cover of Our Water, Our Future
Croton Watershed Clean Water Coalition newsletter, Issue 20
March-April, 2004
Describing the Coalition's Management Plan for the Croton Watershed
With cartoon by Enrique Dura.

Sewage diversion was another major issue related to the protection of the watershed in which the Croton Coalition was involved. The Croton Coalition opposed plans to divert the sewage from all 38 of Putnam County's sewage plants to a regional plant in Peekskill where treated sewage would be released into the Hudson River. In Westchester the Coalition opposed a similar proposal to divert sewage from the two largest plants in the County (Yorktown and New Castle) to the Hudson. The benefit of these proposals was that if implemented, diversion would remove poorly treated wastewater from entering New York City's water supply. The City was expected to pay much of the cost of these plans (Worth, New York Times, August 27, 2000). The money would come from funds that were given to Westchester and Putnam as a result of the New York City Watershed Memorandum of Agreement. The counties were given this money to help them improve water quality. The Coalition argued that sewage diversion, like the construction of a filtration plant, would permit more development that would harm water quality. Diversion would also divert funds that could be used to address the other, more important, source of water pollution in the watershed, which was stormwater runoff from paved surfaces. The Coalition's position was that instead of diversion, the wastewater treatment plants should be upgraded to tertiary or micro-filtration, as was being done in the Catskill and Delaware watersheds (Sandler, 2003).

Marian Rose invited Oreon Sandler, president of the Federated Conservationists of Westchester County, to join the Croton Coalition board because of his activism on the issue of diversion. Sandler was an engineer. Before coming to Westchester, he had worked for the US EPA in the air quality division and was active as a volunteer on

transportation issues. At the time he became active in the Croton Coalition, Sandler managed Section 8 housing for one of the towns in Westchester, a job that gave him time to be involved in community affairs. Sandler and Rose agreed that filtration and sewage diversion were related. Removing sewage from the watershed could change the hydrology of the area by removing large quantities of water from streams. But more importantly, building large sewer pipes would make development much easier for towns and developers. Sandler explained the incentive for the towns quite clearly:

If you take a lot of sewage out of the watershed, you may dry up some of the wetlands, streams and aquifers. And from my experience, upgrading the sewage treatment plants was the better approach to having clean effluent than diverting to plants on the Hudson River, because I don't trust the plants on the Hudson... So I was promoting non-diversion of sewage. She [Marian Rose] kept asking me to join the board because it is an element that pertains to filtration...

Let me explain that. Many people feel sewage diversion, which had been going on for decades, may be having some regional benefit. But it was basically designed to encourage development. And now that the southern end of the county is pretty well developed, by having sewage piped out it would allow developers to have more development in the northern end. In political circles they deny this is for development, but most of us fear this development that the pipe would provide. So if you can prevent this development, you are protecting the watershed. So that is the relationship between diversion and the watershed. (O. Sandler, interview, February 6, 2004)

Although the towns could make the same amount of development possible by building sewage plants, Sandler explained,

Well, what municipality wants to do that? If you are running a municipality, and have the option to get increased growth without having to pay for that service, you'd be in favor of it. And most supervisors are in favor of it because it allows them to increase revenues without providing the increased service. They still have to provide water – well they may not because (the new developments) may use wells. Still, they need to provide schools, lights, etc.. But if they don't have to provide any sewage management it helps the builders build houses for less money than if they had to put in a septic.

Sure, the homeowner does (have to pay for the sewage diversion), but not the municipality. Buyer beware. The fact that you have a sewage bill every year is not unusual, and if you have a septic you have to maintain that too. And I'm not sure how it would come out compared to paying the county for sewage versus septic. I suspect it's similar. It's not a shock to the homeowner, but it sure is a benefit to the municipality or town. (O. Sandler, interview, February 6, 2004)

Proponents of diversion, including James Tierney, the New York City Watershed Inspector General, argued that the growth inducement effect of diversion could be limited by instituting strict controls over land use (J. Tierney, interview, January 7, 2004).

In 2003 the Croton Coalition proposed that Westchester County commission a study of diversion and form a citizens advisory committee to study the issue. In 2004, Westchester County was planning to set up the citizens advisory committee and Marian Rose was expected to serve as co-chair of the committee. The establishment of the

citizens advisory committee was stalled as a result of opposition in the City of Peekskill, where the sewage diverted from the watershed was to be treated in an enlarged sewage treatment plant. Opponents in Peekskill argued that diverting sewage to Peekskill would constitute an environmental injustice. Unlike most of Westchester and Putnam Counties, Peekskill had a significant poor and minority population (Claxton, 2001).

The members of the Croton Coalition were proud of what they had achieved in terms of limiting harmful development in the watershed by becoming involved in the local decision-making processes around land use. At the Croton Coalition's annual meeting on December 9, 2004, Marian Rose claimed that no major development project actively opposed by the Croton Coalition had been approved. Coalition board members took pride in the change in attitudes taking place in the watershed communities, where the level of opposition to new development was increasing. James Tierney, the New York City Watershed Inspector General, credited the Croton Coalition with having a real influence,

They have had a bigger impact than they realized. Environmental conservation in Westchester and Putnam is terrific. People really care about the environment...what the community looks like. Pesticides. Traffic is fundamental. The Democrats and Republicans are both for this. There is a longstanding conservation movement that grew out of the battle for the Hudson River. Groups like CWCWC, Riverkeeper, Scenic Hudson, and Clearwater created a critical mass of environmentalists that doesn't exist in too many places. So a lot of things have been tried there first. The CWCWC serves to press new issues. They are more aggressive environmentalists. They are the first to raise an

issue. They are sophisticated, have money, use the press, and they are smart.

They are a necessary component, because it's hard to do it without local citizen buy-in. The [filtration] plant ultimately ground itself through the process, but on increasing protection they have had a big role. They have been getting people doing environmental reviews addressing stormwater. They are an effective lobbying group. (J. Tierney, interview, January 7, 2004)

On the other hand, the Croton Coalition members felt that they still had not been able to influence the attitude of the NYC DEP and thus address the watershed-wide issue of a comprehensive protection effort. The NYC DEP continued to move ahead on the planning for the filtration plant. While New York City claimed to be committed to watershed protection, its DEP was barely making progress on purchasing land according to the Coalition's Croton Watershed Management Plan (2004). Neither were Westchester and Putnam Counties moving ahead on upgrading their wastewater treatment plants, nor was the stormwater problem being addressed. (For an overview of NYC DEP's progress in implementing the provisions of the New York City Watershed Memorandum of Agreement, see New York State Department of Health & New York State Department of Environmental Conservation, 2002.)

In this section, we have seen how the Croton Coalition activists responded to the ongoing threats to the watershed that contributed to the degradation of water quality. The Coalition had many successes in addressing the incremental threats posed by increasing sewer capacity, construction of new buildings and roads, and expansion of the airport and development. As scholarship about the environmental movement and on citizen participation has noted, these kinds of distributed threats to the environment are often

most effectively addressed at the local level. In recent years, pressure to place more responsibility for environmental regulation at the local level has come from both environmentalists and their opponents in industry. Both agree that regulation emanating from the federal level often fails to achieve its goals and sometimes exacerbates conflict. Collaborative environmental management efforts such as watershed partnerships are one response that has received federal government support (McCloskey, 1992; Dunlap & Mertig, 1992). And more generally, citizen participation is often more effective at local scales. As Fiorino (1996) concludes, “It is almost a truism in the study of democratic participation that the likelihood of effective participation declines as the control over a decision moves further away from those affected, and as the scale and scope of the decision broadens” (p. 209).

While the prospects for success may be slim, the Croton Coalition’s experiences clearly demonstrate that to achieve its goals, simultaneous action at a variety of scales was needed. To achieve its objectives, the Croton Coalition had to influence decision-making at the national level because of the involvement of the US EPA. The EPA’s mandates regarding water quality and filtration set the parameters within which the NYC DEP and local governments were operating. Although there were ostensibly opportunities for public participation in the EPA’s decisionmaking process, in practice the Croton Coalition found that it had little opportunity to exert influence at this scale.

Third Turning Point – Diverging Interests (the Alum Proposal)

As we have seen, in 1996 Mayor Rudolf Giuliani agreed to reopen the siting process for the filtration plant, and to consider alternative sites in addition to the Jerome Park Reservoir. While the NYC DEP developed a new list of sites, it also undertook

some other efforts to respond to the demands of the opponents of the filtration plant. The NYC DEP hired the Joint Venture of Metcalf & Eddy and Hazen and Sawyer, the same Joint Venture that was planning the filtration plant, to complete a study of filtration alternatives. The NYC DEP also announced the formation of a Croton Citizen Advisory Committee (Croton CAC), although it delayed actually convening it. The Croton CAC was first announced in January, 1996, canceled by the Mayor in April 1996, and finally convened in April 1997 (Grover, 1997; Harper, 1996). This committee eventually included Bronx activists who had been involved in opposing the siting of the filtration plant at the Jerome Park Reservoir, as well as people from Westchester.

In November, 1997 the Joint Venture completed the report on filtration alternatives. It proposed an alternative treatment plan for the Croton water supply that could possibly make a filtration plant unnecessary. This plan consisted of alternative end-of-the-pipe treatments that would eliminate the need for construction of one large centralized filtration plant (Freud, 2003; NYC DEP, 2002b). In 1998 the Joint Venture's report was reviewed on behalf of the Croton Citizens Advisory Committee by a consultant paid for by the NYC DEP. The consultant raised a number of concerns about the report. These concerns included that the Joint Venture's modeling of the causes of water quality degradation was inadequate, in large part because of NYC DEP's inadequate collection of data about the Croton watershed. The consultant told the members of the Croton CAC that he believed that the NYC DEP did not have a single staff member with significant knowledge about watershed protection (F.X. Browne, Inc & Environmental Research and Consulting Inc., videotape of meeting of October 22, 1998).

The most important component of the alternative treatment plan proposed in the Joint Venture's report consisted of adding aluminum sulfate, commonly referred to as alum, to the water at the Muscoot Dam as it entered the Croton Reservoir. The alum would collect organic carbons and settle in the Reservoir, potentially reducing the amount of chlorine needed to treat the water. The Joint Venture report concluded that this component of the treatment plan would have the most significant effect on water quality. The NYC DEP needed regulatory permission from the NYS DEC to test this treatment for two years. On October 20, 1999 the DEP made a negative declaration that in accordance with the State Environmental Quality Review Act (SEQR) and CEQR (the equivalent city requirement) the project was "not anticipated to have any potential significant adverse effects on the quality of the environment," and therefore that no environmental impact statement would be required. The NYC DEP sought approval from the NYS DEC on this basis. The Croton Coalition opposed the granting of a permit without a SEQR review, which the NYC DEP alleged was not needed because the test would not have any negative effect on the environment. Ultimately the NYS DEC did not allow the test to proceed without a SEQR review, so the NYC DEP never went ahead with the test. Rose, the president of the Croton Coalition, called this one of the Coalition's few real victories, but it caused conflict within the Coalition, and may have been the beginning of the end of the alliance between the Bronx contingent and the watershed contingent. I will discuss this conflict in some detail both because it proved to be an important turning point for the Coalition and also because it highlights the complexities involved in balancing the Coalition members' various priorities.

Conflict erupted within the Croton Coalition because Marian Rose, president of the Coalition, thought that the environmental review should be required. Its founder, Karen Argenti, argued that this requirement would derail the search for an alternative treatment plan. She and her supporters in the Bronx felt that the alum treatment should be tested. If the test was successful, it might avert the need for a filtration plant to be constructed in the Bronx. On June 30, 1999, Argenti, along with several other Bronx activists, sent a letter to the NYS DEC expressing their support for the proposal and urging that the NYS DEC grant the necessary permit (Letter to Marc Moran, Regional Director of DEC Region 3 from Tina Argenti, Karen Argenti, Dart Westphal, Jane Sokolow and Paul Mankiewicz). Days later, on July 7, 1999, Marian Rose sent a letter to the NYS DEC, signed by several CWCWC board members, urging that the NYS DEC not grant the permit without a full SEQR review. This letter asserted that the NYC DEP's analysis of the project had major scientific shortcomings. Specifically the letter alleged that alum treatment could be dangerous to the ecosystem of the Croton Reservoir and that if the NYC DEP were to begin applying alum, the Croton Reservoir would be downgraded according to New York State law and actually be opened to further degradation, since source waters for untreated water systems are subject to stricter controls than source waters of treated water systems (Letter to Marc Moran, Regional Director, NYS DEC Region 3, from CWCWC on July 7, 1999). In November, Rose made a statement to the Westchester County Board of Legislators in which she said,

Such a massive dose of alum on a continuous basis, over a two-year period, has never previously been applied to any reservoir in the New York City system.

The DEP has appointed itself lead agency for this experiment, which it terms a 'pilot project,' and has issued a declaration of no significant environmental impact, i.e. a negative declaration.

If this project does not warrant a positive declaration and a full environmental review under SEQR, then, we ask, what project would?

A January, 1999 review of the project by a consultant, hired and paid for by DEP, Dr. Frank Browne, concluded that the JV [Joint Venture of Hazen and Sawyer, Metcalf & Eddy] had not properly evaluated the benefits of watershed management, and that the experimental data on which they based the feasibility of their alum experiment were unreliable.

These are but a small sample of the multitude of unanswered questions that can only be addressed in a full SEQR review. Furthermore, this review would force the DEP to take the requisite 'hard look' at other solutions which, possibly, could have less of an environmental impact. The DEP should be managing its watershed and protecting the reservoirs, rather than pouring in more pollutants in an attempt to mitigate the pollution that it should have prevented in the first place. (Rose, Statement to the Westchester County Board of Legislators regarding the Alum Addition Project 9CEQR #99DEP(31) November 29, 1999)

The alum proposal highlighted the differences between the Croton Coalition board members from the watershed communities and those from the Bronx. The activists from the watershed communities were very concerned about what they perceived as a risky experiment that could destroy a living lake. Alum is commonly used in water treatment as a coagulant to remove small particles of sediment. However the activists

were concerned about the possible effects on biota once the alum settled on the bottom of the reservoir. The activists were aware of a previous use of alum by the NYC DEP which had been challenged by environmentalists. The NYC DEP had used alum in connection with pumping from the Hudson River during droughts, and the alum settled as sludge on the bottom of the reservoir (“New York City Faulted,” November 13, 1990). Looking back on the disagreement within the Coalition over alum several years later, Rose said,

Only Jerome Park was for it. Every environmental group was against it. And the Westchester County Board of Legislators came out against it. We told the DEC [Department of Environmental Conservation] not to give the DEP a SPDES [State Pollutant Discharge Elimination System] permit for it. It was the only proposal that the DEP ever made to treat the water so that they wouldn’t need a plant. But it was still not protection. Jerome Park was always against what we wanted. The alum would have destroyed the biology of the reservoir. There was not an iota of evidence that it would work. The DEC stopped them in the end. It was a big effort, but one of our biggest successes. (M. Rose, personal conversation, April 27, 2005)

Argenti, on the other hand, saw the Coalition’s opposition to the alum project as a critical missed opportunity to avoid filtration. She felt the Coalition’s position was a betrayal of her community. In discussing the difference in the perspectives of the two groups, she said,

...they still have the same position as the upstaters share – which is that New York City should pay, pay, pay, and there is no responsibility that people up there should have. So when the time came...they were going to put alum in the

reservoir...that would have proved the water was clean enough because alum would have taken out the turbidity and it would have been clean. And they wouldn't let that happen because they didn't want their ecology or community to be interrupted whatsoever. And that was also the CWCWC. So they took a position on that, against the people in the Bronx who wanted it... (K.Argenti, interview, May 6, 2004)

Argenti's position was that the alum would not harm the reservoir. Given that this was an issue where the science was in question, Rose's position (which was adopted by the Croton Coalition) was more easily defensible since it was not a rejection of the proposal, but merely a demand for a full environmental review. But Argenti's concern about the strategic implications of demanding further review by the NYC DEP proved correct. It is unclear how much influence was wielded by the Croton Coalition and other grassroots organizations on this decision, but once the environmental review became necessary the NYC DEP declined to pursue the project. However whatever the outcome, the proposal had divided the activists. They had been able to come together to advocate a policy of pollution prevention, and no filtration plant anywhere. This proposal was another form of treatment of pollution after the fact, and it pitted one community against another just as much as a filtration plant would have done. The conflict over alum presaged the dissolution of the Coalition over another proposal for an alternative water treatment, chlorine dioxide.

The conflict over alum raises issues of how conflicts over science and technology entered into the filtration controversy. Debates over science are a feature of environmental controversies that has drawn significant attention (Fischer, 2003; Nelkin,

1984). As in this case, many environmental problems entail unknown or hard to predict risks. They involve the complex interaction of social and physical factors, and include normative questions. As has been pointed out by Nelkin (1984), although technical arguments often become the focus of controversy, they may create further uncertainty and usually do not change anyone's mind. Nelkin has found that the outcome of technical controversies usually depend on dramatic events or political changes. Grassroots environmental organizations in the anti-toxics and environmental justice movements have been influential in bringing attention to the limitations of science in informing policy decisions and fostering new scientific approaches (Tesh, 2000; also see Rodriguez, 1999 regarding the outcome of siting controversies in New York City).

Despite growing understanding that science alone cannot provide answers to most environmental policy questions, science continues to provide the terrain of conflict. In this case, both the NYC DEP and the Croton Coalition referred to science as a source of authority. For example, Michael Principe, Director of the Bureau of Water Supply, told me: "What we were looking for was...let's be objective and look at the science. Not to use it to leverage an anti-development agenda. When you look at the science it makes a lot of sense. It's not at the cost of watershed protection..." (M. Principe, interview, September 1, 2005). In response, the Croton Coalition activists made extraordinary efforts to procure data and scientific expertise to support their positions, including hiring expert consultants and preparing position papers.

The Croton Coalition bolstered its arguments against filtration with its own interpretations of the facts cited by the NYC DEP to make its case for filtration. A quick review of a few of the facts contested by the Croton Coalition demonstrates how deeply

the Coalition activists became involved in the politics of science. For example, the NYC DEP claimed that water quality in the Croton watershed had deteriorated, and cited the fact that the system had to be shut down frequently. The Croton Coalition filed a request under the Freedom of Information Act and determined that the system had been shut down on occasion, but not because of source water pollution (M. Rose, interview, November 30, 2001). Similarly, the Croton Coalition disagreed with the NYC DEP about the significance of the threat of cryptosporidium and giardia in the Croton water supply. The institution of the Surface Water Treatment Rule was motivated by concern about these protozoan pathogens (Smith, 2004; Levine, lecture, October 14, 2004), and the NYC DEP frequently reiterated that filtration was necessary because of this threat. The Croton Coalition pointed out that the NYC DEP's own data indicated that there were lower amounts of these pathogens in the Croton watershed than in the Catskill and Delaware watersheds, and furthermore, the Croton Coalition pointed out that filtration is not particularly effective in eliminating them.

One scientific argument that the Croton Coalition found particularly infuriating was about disinfectant byproducts. The NYC DEP claimed that the water from the Croton supply would have had to be filtered even if the watershed was pristine, with no development at all. The NYC DEP's claim was that the Croton water supply was naturally rich in organic carbon. This carbon promoted the growth of algae leading to eutrophication in the summer months. Without filtration, the water in these reservoirs was not suitable for use. More importantly, the interaction of the carbon with the chlorine used to disinfect the water resulted in disinfectant by-products (Freud, 2003). While the Croton Coalition accepted that the disinfectant by-products might be cause for

concern, the Coalition proposed an alternative interpretation of the facts and an alternative solution. Although some of the carbon was unavoidable, problematic levels were the result of pollution carried into the reservoirs by stormwater runoff. The Coalition argued that the solution was prevention rather than treatment. Reducing the runoff – a basic watershed protection strategy – could reduce the need for chlorine, eliminate the by-product problem, and make filtration unnecessary (O. Sandler, interview, February 6, 2004).

The Croton Coalition's position was informed by a suspicion of technology that has been characterized by Beck (1992) as a reaction to the "risk society." The Coalition activists were generally not a radical group with a broader societal critique, and never extended their activities to other issues beyond the Croton watershed. However, their arguments about filtration drew on ideas developed in the grassroots environmental movement (Fischer, 2003). Although they were not against the use of all technology, they referred to the filtration plant as a "chemical filtration plant" to emphasize that the NYC DEP was building a much bigger, more elaborate, and more dangerous facility than necessary. The Coalition's comic books, developed by David Ferguson, depicted the plant as a kind of witches' den where poisonous potions would be brewed. Whether this use of language was strategic, or actually reflected deep-seated attitudes toward technology, the Coalition activists were attempting to tap into feelings about technology that are a factor in public attitudes (Tesh, 2000).

The conflicts over science in which the Croton Coalition engaged were typical of conflicts that emerge in environmental controversies. Fischer (2003) has described how grassroots activists use a different kind of reasoning that depends on cultural context and

local knowledge to reach their conclusions about scientific and technical questions. In the conflict over filtration the NYC DEP emphasized the need to conform to the federal and state regulations that require an end-of-pipe technical fix to ensure water quality. As we have seen, the Croton Coalition took many more factors into account. These included desire to avoid unintended local impacts of filtration such as the siting of the plant and increased development in the watershed, intimate knowledge of the local geography, distrust of the regulatory authorities, and confidence in the ability of local communities to mobilize to protect the watershed by changing land use patterns.

Ultimately, the crux of the issue was a question that science could not resolve – the question of what would happen in the future. The US EPA and NYC DEP's position was that water quality would likely deteriorate due to population growth in the watershed. This was the position that underlay the Surface Water Treatment Rule, which required a city to show that it had complete control of its watershed in order to avoid filtration. The Croton Coalition, on the other hand, argued that people could change their ways. With vigilance from the NYC DEP and mobilization by citizens in the watershed communities, pollution prevention could achieve the same goals as filtration. Was the Croton Coalition's view naïve and quixotic, or prescient?

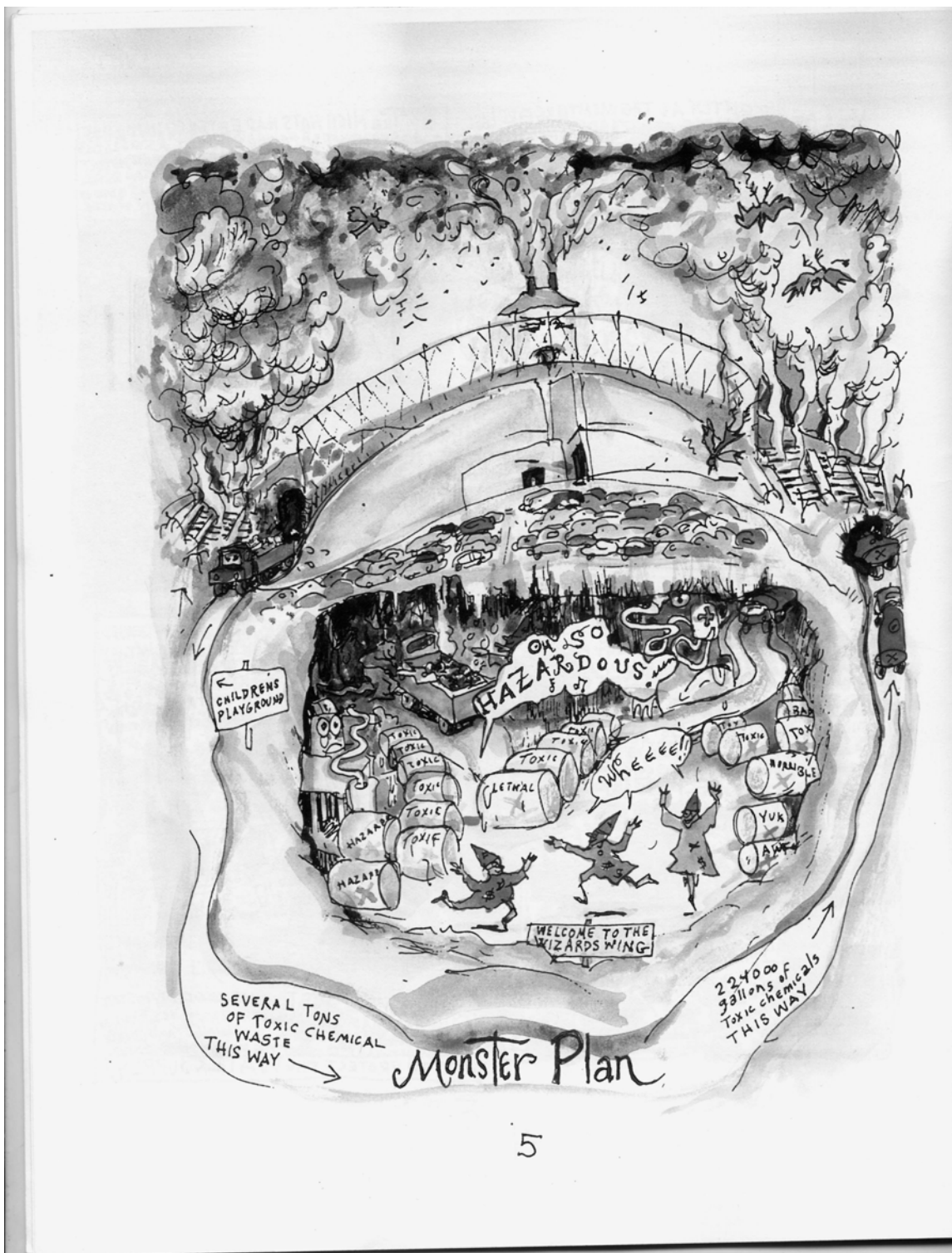


Illustration 12

Depicting the proposed Croton Water Treatment Plant from
The Monster from the DEP

Comic book published by the Croton Watershed Clean Water Coalition, 2002
 Story by David Ferguson, illustrations by Alice Meyer Wallace

Fourth Turning Point – The Walkout

In early 2001 most of the representatives of the organizations from the Bronx walked out of a Croton Coalition board meeting. The organizations that they represented resigned from the Coalition. As I have mentioned, the alliance between the Bronx organizations and the organizations from the watershed communities had already been strained by the difference of opinion over alum. The two sides had also disagreed about sewage diversion. The Bronx organizations had supported diversion, seeing it as one component of an alternative strategy to protect water quality, while Marian Rose and her allies on the Croton Coalition board opposed it (M. Rose, interview, November 30, 2001). According to Argenti, the issue over which the alliance eventually fell apart was Rose's advocacy for treatment of the Croton water supply with chlorine dioxide (K. Argenti, interview, May 6, 2004).

In 1999 Jim Roberts, a NYC DEP engineer working in the Croton watershed, had begun to promote the idea of using chlorine dioxide as an alternative to filtration. Chlorine dioxide was used widely in Europe and did not have the same problems as chlorine in regard to the creation of trihalomethanes, a type of disinfectant byproduct. Roberts was very helpful early in the Coalition's history, and Marian Rose took up the idea of promoting chlorine dioxide at his suggestion. On June 28, 1999, Roberts sent a letter describing his proposal to the New York City Council, Alan Hevesi (New York City Comptroller), Mark Green (New York City Public Advocate), Robert Kennedy Jr. and the Croton Coalition.

Roberts' proposal for chlorine dioxide treatment caused a crisis in the Croton Coalition because this proposal required the use of facilities in Jerome Park Reservoir. In a multi-step process, a chemical (possibly alum) used in conjunction with the chlorine dioxide would be added to the water to serve as a coagulant. The resulting floc would settle out of the water in the Jerome Park Reservoir. This was completely unacceptable to the Bronx contingent because part of the procedure would take place at the Jerome Park Reservoir, and they considered Rose's advocacy of it a betrayal. Frank Eadie, the Sierra Club leader who introduced Rose and Argenti, explained the Bronx view:

Marian has misrepresented what chlorine dioxide involves because as well as a disinfectant, it is also a precipitant...At Jerome Park the Reservoir would be used as a settling basin for the clumps to settle out on the bottom... Then they would have to be cleaned out, water would flow out, you clean out sludge and it would probably be - dependent on whether it's determined to be toxic - disposed of in the sewer system or trucked out and to a landfill.

So either way there would be a lot going on at Jerome Park with major trucking, industrial processes. Not a pleasant place to have a park and relaxing view over the Reservoir. So that's what's involved. It's not just disinfection, even though Marian and her friends say it's a disinfectant like chlorine. That's not the case. And it's obviously a major slap at Karen [Argenti], who lives right on the Reservoir, and all of the active people who have over the years been fighting for the Reservoir as a public place... (F. Eadie, interview, March 12, 2004).

Although chlorine dioxide was the final straw, there were tensions in the Croton Coalition from the beginning. One area of disagreement was the Coalition's tactics in

opposing filtration. When the Coalition was initially established, they decided to advocate for “dual track,” i.e., the same policy being implemented in the West of Hudson watersheds. This policy was that New York City should plan for filtration while doing its best to avoid the need for filtration by protecting the watershed. But Argenti felt that the Coalition was opposing any planning for a possible plant, and emphasizing its complete opposition to filtration. Argenti thought this was a tactical mistake, because it would be difficult to convince New York City to take the risk of discontinuing the planning. But to the Bronx contingent, when the Croton Coalition took up chlorine dioxide as an alternative to filtration, it was the same as arguing for a filtration plant in Jerome Park – the exact thing they were most concerned about.

Originally they had two positions. We were trying to get dual track. This was like a holding mechanism. While making plans for the plant, start making plans to protect the watershed. And when you get to a point where you can't go back, stop and evaluate if you have done enough work to protect the watershed. That's what they did in Cat-Del and so we asked for the same. And CWCWC took a vote on it, and then forgot about it. And Marian decided it wasn't effective. They're not being realistic. If you're going to negotiate, you've got to have something to negotiate with. And then, the real reason the people from the Bronx left, was they were advocating putting in chlorine dioxide. That would be just another mechanism to build a filtration plant. And they were putting it in Jerome Park reservoir. That's where 50,000 people live! They decided and that was it. You're not going to put a filtration plant in my neighborhood! (K.Argenti, interview, May 6, 2004).

Of course the watershed activists saw dual track in a different light. For at least some of them, dual track meant compromising and accepting the inevitability of the construction of a filtration plant. Paul Moskowitz, the leader from Yorktown, said,

I was very disappointed in Karen Argenti and her associates who left the Coalition because what they wanted was what they called dual track. And that meant let's pick a site for the plant which is not in the Bronx, which is in Westchester. So that is specifically NIMBY [not in my backyard] and that is their strategy, a bad one and morally incorrect. It's indefensible to say to say build it in somebody else's backyard, if it's a bad thing you have to oppose it wherever it is and that is what we have done consistently. We have gotten the DEP to abandon plans to build in Yonkers, Yorktown, Jerome Park, Greenburg, and Mt. Pleasant along Sawmill Parkway. They have constantly had to pick new sites, because every site they picked, they have had fierce local and regional opposition. And I think Karen Argenti and her crowd's strategy of just protecting their piece of turf in the Bronx is not a good strategy because then you lose regional support. But you have to talk to her. She may tell you a different story – of course she will. She is the prime mover behind the Bronx factions which are dedicated now to convincing the DEP to build this in Westchester County. I don't think that's going to happen (P. Moskowitz, interview, April 4, 2004).

The spectre of NIMBYism haunted the break-up between the two sides. Moskowitz defended the watershed contingent, and accused the Bronx contingent of NIMBYism. In return, Argenti argued that the people from the watershed contingent were protecting their own interests. In discussing the proposal to treat the water in the

Croton Reservoir with alum, she accused the watershed contingent of protecting their backyard at the expense of hers:

Except for who polluted the water? I didn't do it. That's why I'm talking about responsibility. You polluted it, and I'm going to clean it up in my backyard? So it's not a matter of my backyard or theirs, but it's a matter of who polluted the water. Who's the one that built the houses? They want New York City to clean their water, site the plant, and do everything. And that's because New York City has this big bonding facility. We have a lot more people. But the fact of the matter is we have a lot more people that are poor and we should not be bearing the burden of cleaning the region's water. Those people up there need to accept some of the problems. It's not a question of my neighborhood or their neighborhood. It's their dirty water. It was clean when it started out. You go up to the Great Swamp and it's clean (K. Argenti, interview, May 6, 2004).

Along with Argenti, among the active people that left the Croton Coalition over the issue of advocating for chlorine dioxide were John Klotz and Frank Eadie, original founding members and Sierra Club leaders. After their departure from the Coalition many of the Bronx groups seemed to lose interest in advocating for a policy of avoiding filtration. According to Fay Muir, who lived in Norwood and remained in touch with developments in the Bronx although she sided with the watershed contingent, the Bronx organizations that pulled out of the Coalition focused on opposing the siting of the filtration plant anywhere in the Bronx (F. Muir, interview, December 4, 2001).

The Croton Coalition went on to consult with experts on chlorine dioxide treatments, and James Roberts completed a report for the Croton Coalition on the

technology in May, 2003. However, I came across no evidence that the Coalition's ideas about chlorine dioxide as an alternative to filtration of the Croton supply were ever considered by the NYC DEP. This was probably because by the time the Coalition started to advocate for it, the NYC DEP was firmly committed to the filtration plant and was focused on obtaining the needed legislation to site the plant at the Mosholu Golf Course. The issue of alternatives was not reopened during the period of this research, although there is always the possibility that it will be revisited in the future.

Another factor in the breakdown of the alliance between the watershed groups and the Bronx groups was a clash of personalities between Rose and Argenti. These two strong leaders each exerted a great deal of influence on the network of groups on their side of the divide. However, they were not able to forge a working relationship. One of the board members described what happened as a breakdown in communication between the two leaders:

She (Argenti) got fed up, and Marian got less and less sensitive to the problems of the Bronx, and what it would mean to have a filtration plant built in the Bronx. And the communications broke down between Karen and Marian. And basically the history of the CWCWC has been a matter of who was willing to work with Marian and who wasn't. That's the story, and as a result it's become more and more a Westchester-focused organization...

Rose was elected president of the Croton Coalition at the first meeting, and her influence was further enhanced by the financial support she was able to contribute. While the board members that remained in the Croton Coalition told me that they admired Rose's knowledge and leadership, and described her as supportive and seeking consensus, those

that ended up leaving described her as uncompromising and expecting complete loyalty. She in turn, described Argenti and her allies as wanting an unreasonable amount of control over the Coalition.

The idea for the Coalition was Argenti's, and she brought a whole network of groups with her that had become allies through the campaign to keep the filtration plant out of Jerome Park Reservoir. Board members described her to me as the person everyone listened to in the Bronx on the issue of filtration. At the same time she was known for "having her own ideas on every issue." Argenti in turn found the activists from the watershed communities, whom she tended to refer to as "the environmentalists," inflexible and lacking in political savvy. In terms of style, the two were very different. Argenti was confrontational, while Rose exerted control from behind the scenes. Rose gained control of the Coalition when the board turned down some of Argenti's ideas and she became frustrated enough to quit the Coalition. After she led the Bronx organizations out of the Coalition, she organized a new coalition in the Bronx to continue the fight against the filtration plant.

Following the resignation of the Bronx organizations, the character of the Croton Coalition changed. Although some New York City organizations remained inside the Coalition, the growth was in the watershed communities. The Croton Coalition started with 25 member organizations and, despite the loss of the Bronx organizations, by 2004 it had grown to 40 members. Although the board members from the watershed communities continued to view the Croton Coalition as an organization representing citizens of both New York City and the watershed communities, it was clear that the balance shifted to the watershed.

Beyond the implications of the dissolution of the alliance for the Croton Coalition's political aims, the dissolution raises important questions about the potential of similar efforts. The idea of a regional coalition seemed so promising, suggesting the possibility that addressing the problem of water quality at a regional and watershed-wide scale could resolve conflicts that were not able to be resolved at the local scale. The experience of the Croton Coalition reminds us that such efforts face many obstacles.

One obstacle faced by the Croton Coalition was charges of NIMBYism. As we have seen, the Croton Coalition activists themselves attributed their internal conflicts to NIMBYism. Each side accused the other of selfishness and of failing to adequately appreciate the other's point of view. They each accused the other side of using the Coalition merely to gain support for the issues important to their own community. In remarks to the media, the NYC DEP Commissioner also used the NIMBY term, characterizing the opposition to the filtration plant as based on NIMBYism (Mulvihill, 2003; DePalma, 2004).

According to Freudenburg and Pastor (1992), early research into the NIMBY phenomenon can be grouped according to three viewpoints that variously explain NIMBYism as resulting from public irrationality, selfishness or prudence. They call for research "turning instead to understanding the broader system that creates victims (and victimization) in the first place" (p. 51). Taking up this challenge, Burningham (2000) calls on scholars to distinguish between the use of the term NIMBY as a tactic, and the motivations of participants in locational conflicts. She points out that, "The attribution of motives is a key strategy employed by people involved in disputes about local land use" (p. 5). This is what happened in the filtration controversy, in which the NYC DEP, and

the two contingents in the Croton Coalition all used the language of NIMBY to try to discredit their opponents as selfish.

However, Freudenburg and Pastor find that activists in such conflicts may gain some rewards, but their activity is more accurately described as the “polar opposite” of selfishness. As in similar cases, the Croton Coalition activists made tremendous sacrifices to carry on their activities and suffered from hostile attacks by others. Freudenburg and Pastor suggest that the activists in these kinds of conflicts may be motivated by “rational selfishness,” and that their activities serve to benefit society as a whole pp. 48-50). It is also worth noting that a sense of connection to place is an important motivation for people to protect the environment. The Croton Coalition, with its ambitious aims to protect the entire Croton watershed, would never have been formed without this motivation. Political action on behalf of the environment usually begins when people sense that their environment is threatened at the local scale (Szasz, 1994). From this beginning, consciousness of the connections between problems of the local environment and problems at a broader scale can be developed, as happened when Karen Argenti recognized the connection between the threat to the Jerome Park Reservoir that was literally on her doorstep and the entire Croton watershed.

In analyzing the significance of accusations of NIMBYism, Burningham also notes that activists are frequently caught between the need to defend their position as unselfish (not NIMBY), while at the same time the protection of their own private interests is the only claim they can make under the legal system. Thus the legal context forces them into a political position from which they must then defend themselves from charges of NIMBYism. Similarly enlarging our point of view on NIMBYism, Lake

(1993) has explained that charges of NIMBYism resulting from locational conflict are merely symptoms. The deeper problem is the avoidance of fundamental environmental problems that should be dealt with at the source, and whose negative consequences are deliberately shifted from capital to communities. The Croton Coalition, which was formed expressly to reveal the significance of the fundamental problem of pollution and to propose the solution of prevention, is a good example of the dynamic described by Lake.

More concretely, the Croton Coalition's range of options was limited by existing political opportunities. The Coalition entered the political arena when the filtration plant was already planned and sited. The Coalition activists were placed in a reactive mode and they had to take positions within boundaries set by NYC DEP. The two issues of alum and chlorine dioxide seem like mirror images. One would have impinged on the watershed communities and one on the Bronx neighborhood. Neither side seemed to see the other as having a legitimate objection to their position. The challenge to maintaining a regional perspective was compounded by the fact that political participation in small, local settings is usually more possible and more effective (Sirianni & Friedland, 2001). So the member organizations in the watershed communities were able to make more headway in their communities, while New York City remained resistant to influence on the policy of watershed protection.

It would be easy to blame personalities for the demise of the alliance. In addition to the personal styles of the leaders, different orientations based on class and professional backgrounds probably added to the tensions within the Croton Coalition. Movements that have social change goals may make more of an effort to deal with these issues

directly, viewing the maintenance of the organization and alliance as central to success (Schlosberg, 1999). Within the Croton Coalition the focus was on the goals and little attention was paid to building the organization. As a small grassroots citizens' organization, the Coalition was always on the defensive. Every step was viewed as having high stakes, choices were limited by the alternatives presented through the policy process, and the feeling was that there were limited resources to pursue multiple strategies. The Croton Coalition was unable to overcome all of these great obstacles to the maintenance of the alliance between the Bronx organizations and the watershed community organizations.

Fifth Turning Point – Divide and Conquer

Successful litigation by opponents of the filtration plant succeeded in slowing the momentum of the project on February 8, 2001. On that date the New York State Court of Appeals decided that construction of the plant at the Mosholu site would require authorization by the New York State legislature, in the form of an alienation bill allowing use of parkland for a non-park purpose. Opponents of the plant were optimistic that this decision would actually derail the plans for the plant at the Mosholu site.

In response to the court's decision, New York City renegotiated the consent decree and committed itself to have a plan for construction of a plant at some site by April 30, 2003. New York City identified two new sites, Eastview and Harlem River, and began preparing environmental impact statements for these sites. The opponents of the plant were kept busy for the next two years with the associated hearings at each stage of the environmental impact statement (EIS) process, while also trying to keep public interest alive in the Bronx.

However, as the April, 2003 deadline neared, it became clear that New York City was focusing on the Mosholu Golf Course site and would try to obtain approval for the alienation of the parkland. A major obstacle to New York City's plan was the need for the support of the Bronx delegations in the City Council and in the New York State legislature. However, the tradition in the New York State Assembly was that an alienation bill would only be passed with the support of the member representing the affected district. Assemblyman Jeffrey Dinowitz, representing the district, was adamantly opposed to the plan. The Norwood News reported that, in accordance with tradition, Dinowitz had been assured by Assembly Speaker Sheldon Silver that the alienation bill would not be passed over his objections (Moss, 2000).

On March 20, 2003, in order to circumvent Dinowitz and put pressure on the Assembly Speaker, Commissioner Christopher Ward of the NYC DEP convened a meeting with six members of the Bronx Assembly delegation, led by Jose Rivera, at the Bronx Democratic Party Headquarters. At this meeting Ward apparently offered this group a financial incentive to support the alienation legislation despite Dinowitz's opposition and Assembly tradition. \$43 million in mitigation funds for the Bronx had been discussed prior to this meeting, a standard practice to compensate the surrounding community for bearing the burden of construction for a public facility. Ward implied that there would be more money coming. Eventually \$243 million was offered, to be directed toward improvements for parks in the Bronx, to ameliorate the impact of the filtration plant (Moss, 2003a; Ryan, 2003).

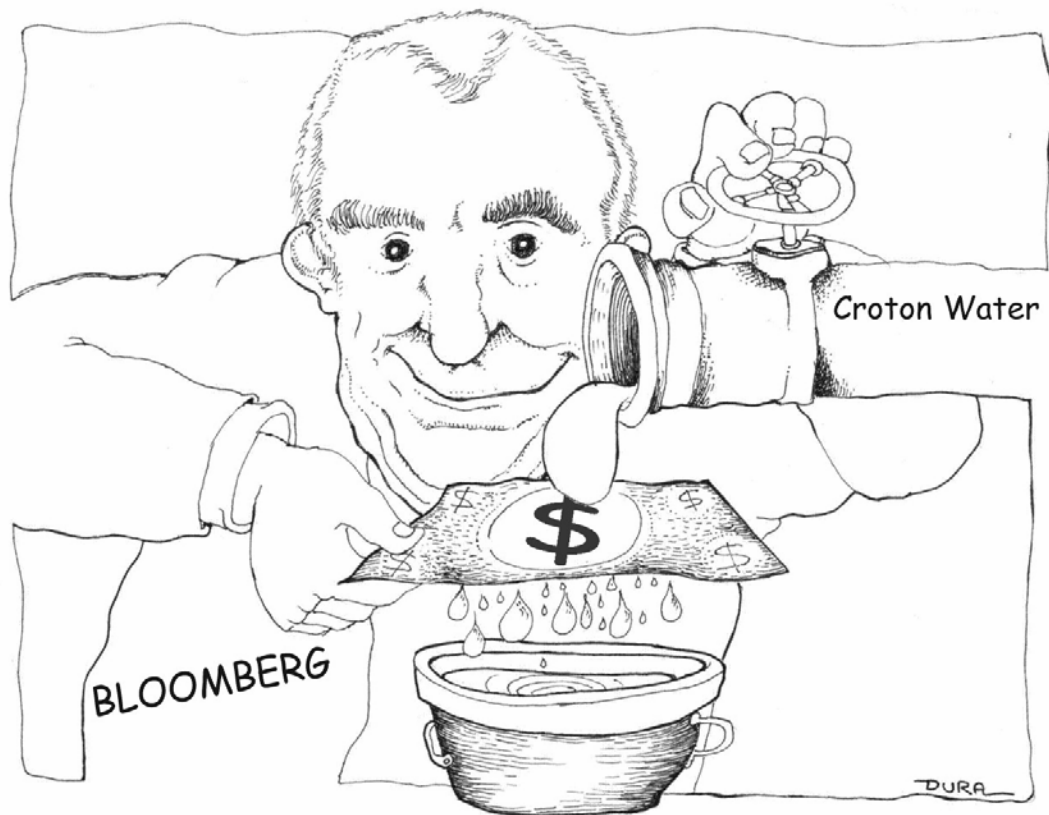


Illustration 13
Bloomberg's Filter
Cartoon by Enrique Dura that appeared in
Our Water Our Future
Croton Watershed Clean Water Coalition Newsletter, Issue 17
October-November, 2003

The offer of over \$200 million dollars set off a scramble among the politicians to determine who would actually get to disburse these funds. Reports of the negotiations taking place in Albany about who would have the authority to allocate these funds reinforced the impression that this was a case of pork barrel politics. Governor Pataki reportedly wanted funds to be allocated to a state park in the Bronx (Roberto Clemente State Park), and also refused to sign until Mayor Bloomberg agreed that the Bronx Borough President Carrion would participate in the distribution. The funds would be part of the expenditures for the filtration plant, financed by revenue bonds issued by the New York City Water Finance Authority. As such, the funds were outside the regular New York City budget. This was an extra pot of money available as a result of the construction of the filtration plant (Kappstatter, 2003; Johnson & McKinley, Jr., 2003).

In order for the New York State legislature to consider the alienation legislation, a home rule message by the New York City Council requesting such action was required. This resolution was passed in June, 2003 by a vote of 44 in favor and 4 opposed (Moss, 2003b). Once Council Speaker Gifford Miller called for a leadership vote, requiring party members to vote as instructed, there was no chance of defeat of the resolution. Almost the entire Bronx delegation voted for it. Most of these members answered to Jose Rivera, the Bronx Democratic Party leader who was supporting the plant. The Croton Coalition, advocates for New York City parks, and other opponents of the filtration plant were extremely disappointed with the results.

The vote in the New York State Assembly was much closer. The legislation was passed on June 20, 2003 at 3:00 am, one of the last actions taken in a legislative session that was supposed to end on June 19. It passed with a vote of 78-68; just two votes more

than needed for passage. The New York State Senate also passed the bill. Due to the negotiations over how the \$243 million would be spent, Governor Pataki held off on signing the legislation. For a few weeks after the passage of the alienation bill, the opponents of the plant held out hope that Governor Pataki would veto the legislation. However, on July 22, 2003, the Governor signed the bill after Mayor Bloomberg agreed to all of his demands (Johnson & McKinley, 2003).

Another year passed while the politicians involved decided how the parks money would be divvied up. When they finally reached agreement in September 2004 the results were codified in a Memorandum of Understanding (MOU) signed by Assembly Speaker Silver, Senate Majority Leader Bruno and Mayor Bloomberg.. The MOU was approved, and allocation of the funds was ratified by the New York City City Council on September 28, 2004. Concurrently the NYC DEP prepared a supplemental environmental impact statement (EIS) comparing the Mosholu site to the other two sites under consideration. New York City had been claiming that no further EIS was needed, despite changes in the plans, but Governor Pataki made the EIS another condition for his signature on the alienation legislation. Although New York City had committed to completing the environmental review of the three sites before making a decision, the review process seemed pre-determined. Shortly after committing to complete the EIS, Mayor Bloomberg was quoted as saying that “the EIS is not gonna stop this” (August 28, 2003 Norwood News). The EIS, although viewed as completely inadequate by the opponents of the plant – and even dishonest in its attempt to prove that the Mosholu site would be the least expensive for New York City - did keep everyone busy with additional hearings. The final EIS was issued on June 30, 2004.

The offer of the mitigation funds for the Bronx parks was the last straw in terms of the ability of the opponents of the plant to maintain any kind of united front. John Klotz, the Sierra Club activist and Croton Coalition's one-time lawyer, described what happened:

I thought we had an agreement that we would oppose this in front of the legislature on the grounds of no factory in a park. Very easy, straightforward message. But the people close to Marian, including the Sierra Club conservation chair, insisted on arguing no filtration, so we don't have to build and put it in a park. Which was a totally ineffective argument at that time. We did not have the scientific basis that we could go to the legislature and convince them that we were right. So our goal was to prevent it from being in the park. That should have been our goal. Its like football. You gotta go 100 yards. You don't throw a hundred yard pass every play... (J. Klotz, interview, February 13, 2004).

Paul Sawyer, the director of the Friends of Van Cortlandt Park, was exasperated by the inability of the opponents of the plant to maintain a unified front. He explained, The Friends of Van Cortlandt Park say not to put it in the park. The CWCWC [Croton Coalition] says it does not need to be built. So we would be with the press, and we would talk about parks. The CWCWC would say that the water is clean and the problem is the pipes. We would agree that they wouldn't say that, and they would say it anyway... There was a New Yorkers for Parks meeting at the Borough President's office and Ann Marie Garti (of the Jerome Park Conservancy) was there. I told Ann Marie, 'it's not about filtration. If you bring it up, it will be divisive.' And she agreed. Then she made a speech about the

plant. We all agreed it shouldn't be built. But why not deeply divided us. And some people are on both sides! (P. Sawyer, interview, December 10, 2004)

Advocates for the parks were very divided, as New York City seems to have intended, by the prospect of over \$200 million dollars in capital funding for Bronx parks. The 2003 capital budget for all New York City parks was only \$180 million (City of New York, 2003). Although the Friends of Van Cortlandt Park was continuing to oppose the plans for the plant, other parks organizations broke ranks. The New York City Parks Department was enthusiastic about the prospect of the funding, and encouraged organizations affiliated with parks in the Bronx to support the filtration plant. At a City Council hearing that I attended on September 15, 2004, I sat next to a representative from a friends organization that supported one park in the Bronx. She had received a call from the New York City Parks Department asking her to come to the hearing and support approval of the Memorandum of Understanding about the mitigation funds. She had no idea that the funds were related to alienation of land in Van Cortlandt Park. At a Croton Coalition meeting held in Norwood, Paul Sawyer, director of the Friends of Van Cortlandt Park said, "...they (residents and parks groups) say it's a done deal. Park groups are already working on how to spend the \$243 million from the DEP. We need to get people to understand that it's a much broader issue" (Croton Coalition, minutes of meeting, September 17, 2003). The funds were all the more tempting since the Bronx parks had been receiving a declining level of capital funding, while the funding for parks in the other boroughs had increased. The reason for this discrepancy was reportedly because Bronx Borough President Ferrer had not been getting along with Mayor Giuliani

(P. Sawyer, interview, December 10, 2004). Whatever the reason, the large capital investment represented by the mitigation funds was a great temptation.

The watershed contingent in the Croton Coalition continued to insist that the plant should not be built either at the Mosholu Golf Course site in the Bronx, or at the Eastview site in Westchester. Meanwhile, even before the alienation bill was actually passed by the New York State legislature, many of the opponents of the plant in the Bronx had come to the conclusion that the plant was going to be built at one site or another, and they were speaking out in favor of selection of the Eastview site. A Croton Coalition board member described this as the consensus in the Bronx in March 2004. The Eastview site was on a parcel of land already owned by the NYC DEP and isolated from residential areas. Opponents of the Mosholu Golf Course site referred to the Eastview site as an “industrial water park,” in order to convey that it was an appropriate place to put the filtration plant. The problem with the site, from New York City’s point of view, was two-fold. First, the City would need to pay taxes on the plant because it was outside of New York City, and second the construction project would be outside the territory of the New York City construction unions. John Klotz, one of the founders of the Croton Coalition, supported the choice of the Eastview site in an editorial:

We have benefited from the legacy of those who did think in long-range terms in creating the city’s park system generations ago. Similarly, the city’s water supply system is a marvel of our ancestors’ foresight – unique in its expanse, effectiveness and durability. Shall we now fritter away these legacies?

There is one site that makes eminent sense for all generations: the Eastview site in Westchester. It is already properly zoned, and more importantly,

it will not have an adverse impact on park land or nearby residents. Yet because of political power plays by city-based unions and the Bronx Democratic machine, the city has sought to downplay the viability of this site and has disingenuously inflated the cost of its use (Klotz, 2003).

As the EIS process wound down, the Bronx opponents of the plant focused on Eastview. In February, 2004 a Norwood News editorial encouraged neighborhood residents to come to a hearing on the EIS and advocate for New York City to choose the Eastview site. The editorial, titled “Filtration Crossroads,” (2004) followed an article entitled, “Plant Foes United: ‘Build it in Eastview’.” The article stated: “Though some local activists argued in the past that the facility was completely unnecessary and worked together with Westchester and other environmental activists for filtration avoidance, virtually all opponents of building the plant in the Bronx are now united in the belief that getting the city, which is under court order to filter the Croton, to pursue that option is impossible” (Moss, 2004).

In July, 2004, following completion of the Supplemental EIS on the Mosholu site, New York City announced the selection of the Mosholu site for the second time. Although the construction of the plant was beginning to seem inevitable, Marian Rose wrote in an email sent to the Croton Coalition’s supporters shortly after the City’s decision was announced, “Remember - It's not yet a done deal!” (M. Rose, personal communication, July, 19, 2004). Four new lawsuits were filed, including one by the Croton Coalition. At the same time the NYC DEP moved quickly to begin work at the Mosholu Golf Course site in December, 2004.

Conclusion

The most significant achievement of the Croton Coalition was the mobilization of activists in the watershed to protect water quality. As the founders of the Coalition intended, the Coalition did demonstrate that there was political will in the watershed communities to undertake this effort. John Klotz, a founder who left the Croton Coalition and was disappointed by the direction it took, still credited the Coalition with this accomplishment:

Although we may have to beat this thing in pieces, on the other hand, this is something where CWCWC and Marian deserve an enormous amount of credit, to this day, has been the mobilization of people in the watershed themselves. And the most potent political aspect of this is that people in the watershed have come to realize that protecting the watershed is the best way for them to preserve their lifestyle. And that is an important factor. (J. Klotz, interview, February 13, 2004)

Another important aspect of the Coalition's legacy was a vision of the watershed as a political entity; a vision put into practice by a network of activists serving as watchdogs in the watershed. One of the Croton Coalition activists called what they had accomplished a "citizens dual track." Ironically, the Coalition's efforts helped to make this NYC DEP policy, of protecting the watershed while planning for filtration, more of a reality. In spite of this incremental success, the Coalition never received the response that it would have liked to receive from the NYC DEP.

It is reasonable to ask why the Croton Coalition did not have a similar impact on the level of awareness in New York City of the importance of protecting the watershed.

Most obviously, the goals of the Coalition were initially focused on mobilizing the watershed communities. And of course, the New York City groups left the Croton Coalition quite early on. Most significantly, neither the activists from the watershed communities nor the New York City activists viewed the Coalition as a vehicle for mobilizing people in the City. While new organizations in the watershed continued to join the Coalition, the New York City contingent's reach never extended much beyond the northwest Bronx.

The dissolution of the alliance between the organizations from New York City and those in the watershed was a significant disappointment to the Croton Coalition. The first Coalition newsletter concluded with the statement: "Requirements of clean water do not separate but join us" (CWCWC, 1997). Leveraging political influence by joining together activists in the watershed and in New York City was one of the principal motivations of the founders of the Croton Coalition. The specific issues over which the alliance broke apart were discussed above. Before moving on, I think that it is important to mention the deeper reasons for the dissolution of the Coalition because they point to the challenging context within which the Coalition operated.

As we have seen, both the Croton Coalition activists and their opponents used the language of NIMBY to explain both the motivations for the establishment of the Coalition and the reasons for its demise. And in fact, differences over priorities and tactics stemming from different perspectives did play a role in the dissolution of the alliance. However, the formation and history of the Coalition also reveal the unfolding of an awareness of connection between local concerns and concerns about the watershed as a whole. The activists saw their efforts as an example of NIABY (not in anyone's

backyard) overcoming NIMBY, and stressed how a desire to protect their own community eventually opened their eyes to the threats to the watershed and the water supply. In fact, the issue of clean water is both a local and a regional issue, and must be addressed simultaneously at varying scales. The tension between goals at these different scales was played out in the policy positions that the Coalition took and the difficulties that the Coalition faced in trying to balance the different concerns of each group. Specifically, the Coalition struggled with balancing the local and immediate need of the Bronx contingent to avert the siting of the filtration plant, with the conviction of the watershed groups that a filtration plant in any location would compromise their goals for watershed protection.

Regarding the specific issue of the filtration plant, the Croton Coalition played a part in the wider effort to stop the plant primarily through a strategy of delay. As Paul Moskowitz, a Coalition board member explained, “One environmental strategy is the longer you can keep them from doing something bad, or wrong, the better you are. Because once they do it, it is all over. So the longer you can keep them the more chance another solution will present itself” (P. Moskowitz, interview, April 4, 2004). The Coalition’s lawsuit on alienation was combined with suits brought by other organizations, and did succeed in delaying the construction of the plant for several years. However, it is not clear that it was the Coalition’s efforts that made the difference. The Coalition continued to struggle to attract media attention for its argument. The New York Times supported the construction of the plant as a “win-win” for New York City and the Bronx (“Forward on Filtration,” 2003). As of 2004, the plant was under construction. While

the Croton Coalition and other groups were still attempting to stop the plant by legal means, the Coalition had not succeeded in forestalling construction of the plant.

The Croton Coalition's history, the policy positions it took, the tactics it adopted, and its internal development, are revealing of the nature of urban environmental challenges. In trying to preserve the watershed, a critical natural resource, the Coalition was forced to address a series of interconnected issues to do with open space in the suburbs, urban parks, transportation and wastewater treatment. Questions of environmental justice in an inner city neighborhood, and between it and other locations, issues affecting the quality of life in suburban areas, and issues of infrastructure were intertwined with more "traditional" environmental issues of the preservation of natural areas and ecosystems.

Given the different people and range of issues involved, perhaps it was inevitable that the Croton Coalition was unable to satisfy all of its members. As it engaged in the political process, the Coalition found itself trying to reconcile contradictory policies, such as advocacy of alternative technologies like water treatment with alum or chlorine dioxide, with its stated policy of prevention instead of more treatment. The policy that brought the members together, and had the possibility of satisfying all, was the most radical one – prevention of the need for filtration. But maintaining a pure position was impossible in the face of the need to respond to immediate threats, including a virtual bribe by the New York City administration. Every compromise alienated one or another constituency. So the Coalition faced a classic problem of coalition politics, the need to balance seeking the achievable with the ideal.

The Croton Coalition took the lead in advocating for a radical rethinking of how New York City protects water quality. It faced numerous obstacles, including the significant obstacle of poor timing. As we have seen, the Coalition was formed after the policy of filtration for the Croton had been decided within the New York City administration. This policy was reinforced when the New York City Memorandum of Agreement was negotiated, and a site the filtration plant had already been selected. Although the opposition to the siting in Jerome Park Reservoir prompted the New York City administration to reconsider alternatives to filtration, there is no evidence that there was any political will in the New York City government to seriously pursue an alternative policy. In the next chapter I will situate the Croton Coalition within the environmental movement, and explore how and why the Coalition's stance contrasted with that of other organizations involved in advocacy around the New York City water system.

Chapter 4: The Croton Coalition's Role in the Filtration Controversy

In those days the status of the Croton was that everybody agreed that it needed to be filtered. And in fact Kennedy and NRDC, I guess those were the big players at that point, used the Croton as an example of what was wrong with the way the City was managing the watershed and it was a bad example of what can go wrong if you don't take care of a watershed, and the need therefore to get serious about managing the Cat-Del [watersheds]. ...So I assumed like everybody else that if Kennedy said it was so, Eric Goldstein said it was so, the City and State and Feds said it was so, it must be. We didn't focus very much on the Croton in those days [prior to formation of CWCWC]. (F. Eadie, interview, March 12, 2004)

Introduction

The Croton Coalition played a unique role in the controversy over filtration as the principal and most active organization to take a policy position against filtration for the Croton water supply. In Chapter 2 I argued that the Coalition's position reflected the growing pervasiveness of environmental ideas in American society, and more specifically what has come to be known as the precautionary principle. We have seen that the Coalition's position against filtration was also strategic, necessitated by the need to adopt a position that would prevent the siting of a filtration plant in any community in the Bronx as well as protect the watershed communities from unwanted development.

Although I have argued that the Croton Coalition's position reflected an environmental perspective, the most prominent environmental organizations involved in

advocacy about the New York City water system did not take this position. Obviously, the Croton Coalition was formed specifically to advocate for alternatives to filtration. However, other organizations were also concerned with some of the same issues as the Croton Coalition, and had been involved in watershed issues before the Coalition was formed. Why did none of them take up this issue? Their lack of involvement left a vacuum, which the formation of the Croton Coalition filled. This chapter answers this question by locating the Croton Coalition in the environmental movement and by contrasting the Croton Coalition's role in the filtration controversy with that of the environmental organizations most involved in monitoring and advocating for the New York City water supply system.

In Chapter 2 I argued that the Croton Coalition played a unique role because it was a grassroots organization, free to take a relatively radical position, as well as because its constituency was from both New York City and the watershed communities. In this chapter I elaborate this argument and illustrate it by contrast with the other environmental organizations. I will describe the relationships between the Croton Coalition and these organizations because they help us to understand the unique position of the Croton Coalition in the filtration controversy.

The Croton Coalition was an example of a grassroots, place-based oppositional organization with an environmental agenda. As such it was part of an explosion of thousands of such organizations that emerged in communities across the country in the late 1970's and continued in the following decades. These included organizations prompted by such things as newly discovered toxic landfills, opposition to siting of incinerators and their threat of future pollution, environmental racism, and advocacy for

protection of local water bodies and watersheds (Hays, 1987; Freudenberg & Steinsapir, 1992; Mertig, Dunlap & Morrison, 2002).

New issues and new definitions of environmentalism emerged from these organizations, which had in common that they were place-based and recognized the limitations of the national environmental organizations' dependence on the environmental policy system. These organizations expanded the range of issues considered in the environmental movement to urban problems. Beginning with the problems caused by waste, these movements also developed a critique of the political economy of capitalism and the contributions of industry, technology, and science to environmental problems. They contributed the urgency of the voices of victims and demanded participation in the decision-making process about how to respond to environmental problems. The Croton Coalition was a manifestation of the kind of place-based activism that characterized the toxics, environmental justice and watershed movements. As such it was situated within this grassroots sector of the environmental movement.

The interests and positions of these new, grassroots organizations grew out of their diverse constituencies. The unique role of the Croton Coalition in the filtration controversy stemmed from its makeup as a coalition. The diversity of the people in the Coalition in terms of their communities, backgrounds, race and class seems to have created the possibility for the Coalition to develop a new position – combining concerns that are not usually combined - around which they could all unite. The Croton Coalition's make-up allowed its leaders to see and articulate the connections between the concerns of New York City residents and residents of the communities located within the New York

City watershed. The New York City residents were concerned about the siting of the plant and the impact of its cost, and the watershed residents were concerned about sprawl and its impact on both the character of their communities and the quality of their own water supplies. The Croton Coalition identified the need for watershed protection as common ground.

National Environmental Organizations

In order to begin examining the contrast between the Croton Coalition's unique role in the filtration controversy and that of the significant environmental organizations involved, I will briefly review the organizational development of the environmental movement in the United States. Most accounts of the environmental movement in the United States describe its beginnings in the conservation movement dating to the 1870's. These accounts posit the 1960's as the period in which the movement turned toward broader environmental approaches. Long-established, national conservation-oriented organizations such as the Sierra Club, which played a key role in formation of the Croton Coalition, defined American environmentalism up until the 1960s. They were primarily, although not exclusively, concerned with preservation of wilderness areas.

During the 1960's public concern about environmental problems increased. The publication of Rachel Carson's Silent Spring in 1962 is often described as a turning point in terms of public awareness of the problems created by the post-World War II increase in the production and disposal of synthetic chemicals. The first Earth Day, which took place in 1970, is identified as a culminating point to this process (Mertig, Dunlap & Morrison, 2002). According to Hays (1987), "Earth Day was as much a result as a cause.

That event came after a decade or more of evolution in attitudes and programs without which it would not have been possible.”

Scholarship presents a picture of the expansion of a more complex environmental agenda, a more diverse constituency, and the intensification of activism beginning with the 1970's (Hays, 1987; Mertig, Dunlap & Morrison, 2002). Hays explains that the “years between 1965 and 1972 constituted the second phase in environmental politics, when concern for pollution took its place alongside the earlier-arisen interest in natural-environment areas” (pp. 52-55). The late 1960's and 1970's brought emergence of a second wave of activist national organizations with different concerns about the interaction of people and their environments. Among these organizations were the Natural Resources Defense Council (NRDC) and the Environmental Defense Fund (EDF, later known as Environmental Defense).

NRDC was established in 1970 with the assistance of the Ford Foundation as a public interest law firm focusing on scientific expertise and legal strategies. NRDC was involved in water issues from the beginning, including litigation under the Clean Water Act regarding control of toxic water pollutants starting in the 1970s (Gottlieb, 1988; Hays, 1987). NRDC was one of the two most visible organizations in New York City focused on the watershed in the period discussed in the current research. EDF was established in 1967 with similar goals to those of NRDC. EDF's report regarding toxic chemicals in the water supply of New Orleans, issued in 1974, is credited with influencing the United States Congress to pass the Safe Drinking Water Act of that year (Hays, 1987). EDF, known for its cooperation with the business sector and for maintaining its distance from grassroots groups, was also involved in local water politics

in New York City. James Tripp, a prominent EDF staff member, served on the New York City Water Board which was one of the agencies that oversaw the water system's finances (Gottlieb,1993; Dowie,1996).

During the 1980s the membership and resources of both the older and newer national environmental organizations expanded significantly in response to the Reagan administration's attack on the environmental policy achievements of the 1970's. A group of the national organizations (National Wildlife Federation, Izaak Walton League, National Audobon Society, Sierra Club, Wilderness Society, NRDC, EDF, Environmental Policy Center, Friends of the Earth, National Parks and Conservation Association) attracted increased media attention, and became identified as the Group of Ten. These organizations were large national organizations that were involved in lobbying and litigation focused on the federal government, had national name recognition, and substantial memberships and budgets (Gottlieb, 1993; Cable & Cable, 1995). While these organizations were soon to become the focus of criticism for their perceived elitism, national focus, and lack of interest in nurturing grassroots involvement, it should be noted that they varied considerably in the extent to which they engaged with local communities. For example, NRDC was always involved in local issues in New York City. And the Sierra Club was made up of both a professional, nationally focused office and quite independent local chapters. Conflict between the professionals and volunteers occurred regularly, and open conflict had been known to break out between the national Sierra Club and the New York City Group (Gottlieb, 1993).

As networking to solve local urban habitat problems expanded in the 1970's and the following decades, grassroots activists began to criticize the approach of the large,

national organizations as reform incrementalism. Elitism, bureaucratization, professionalization, and compromise as a result of participation in the “environmental policy system” were identified as characteristics of these organizations (Brulle, 2000; Cable & Cable, 1995; Mertig, Dunlap & Morrison, 2002). These characteristics were viewed as negative influences that constrained the mainstream organizations from challenging harmful activities of government and industry. Critics also charged these organizations with cooptation as a result of the “revolving door” through which their professional employees moved into government and industry (Dowie, 1996; Gottlieb, 1993; Mertig, Dunlap & Morrison, 2002).

As I have previously noted, there were three national environmental organizations that were significantly involved in the Croton filtration issue. These organizations were the Sierra Club, NRDC, and Riverkeeper. All three organizations had a history of involvement in issues affecting the New York City watershed and water supply system and devoted significant resources to these issues. The Sierra Club and NRDC were members of the Group of Ten organizations known for their national focus. But in this case, the Sierra Club’s policies and activities were determined by the Club’s Atlantic Chapter and New York City Group which were led by volunteers. NRDC was founded and located in New York City, and had long been involved in issues affecting New York City’s water. Riverkeeper was a regional organization with a professional staff focused on the Hudson River watershed. I will describe the relationships between the Croton Coalition and these organizations because these relationships help us to understand the unique position of the Croton Coalition in the filtration controversy.

Sierra Club

The first of these three national environmental organizations was the Sierra Club. The Sierra Club was an ally of the Croton Coalition and an important source of activists and resources at the time that the Coalition was formed in 1997. While the Sierra Club had a large professional staff, and was active on the Washington lobby scene, it was also a grassroots organization controlled at the local level by volunteers. When the Croton Coalition was founded it drew heavily from the store of social capital accrued by the Sierra Club (see Sirianni & Friedland, 2001 on social capital accrued by the environmental movement). As we have seen, Frank Eadie, a Sierra Club leader, initiated the process that led to the formation of the Croton Coalition. Eadie introduced Karen Argenti, who was a leader of the fight against the siting of the filtration plant in Jerome Park Reservoir, to Marian Rose. Rose, who became the president of the Croton Coalition, was the conservation chairperson for the Sierra Club's Atlantic Chapter. The Sierra Club's Atlantic Chapter also formally adopted the policy that New York City should try to avoid filtration for the Croton. Describing the Sierra Club's policy, Eadie said, "we were going out on our own" as far as the environmental community was concerned since no other environmental organization had taken a position on this issue (F. Eadie, interview, March 12, 2004).

In addition to seasoned and knowledgeable activists, the Sierra Club provided other resources that helped get the Croton Coalition off the ground. The Sierra Club provided some initial start-up funds for the Croton Coalition's legal activities and served as a conduit for financial contributions. After the Croton Coalition was founded, the Sierra Club continued to remain active on the issue of filtration. The Sierra Club New

York City Group even procured some grant funds from the National Sierra Club to support its campaign against filtration. When the legislation permitting alienation of the Mosholu Golf Course site was considered in 2003, the Sierra Club's Atlantic Chapter provided assistance in lobbying the City Council and the New York State Legislature (F. Eadie, interview, March 12, 2004; D. Ferguson, interview, December 23, 2005; J. Stouffer, interview, December 21, 2005).

Although the Sierra Club's efforts on the Croton filtration issue were local and volunteer directed, some of the constraints that limited the efforts of the national, bureaucratized environmental organizations were on the mind of at least one Sierra Club leader. John Klotz, one of the founders of the Croton Coalition who also took the lead in the Coalition's early litigation, felt some ambivalence about opposing filtration because he felt that it might undermine the Sierra Club's position on other regulatory issues related to the protection of the public from pollution:

In any event they (EPA) have these standards. There are issues about some of them. And the Sierra Club, in my opinion, is in a real bind. We have to recognize that they are claiming that the byproducts of chlorination can cause cancer and birth defects. We have a difficult time, in my opinion, and I think the national club has a difficult time, tying ourselves to the bulldozers on this issue when that is outstanding. Frank (Eadie) said the standards are unrealistic ... and I told Frank the Sierra Club will never argue for lesser standards. We can't. If we start arguing for lesser standards here, it's like the thread being pulled on a sweater, the whole environmental position...they are always telling us that our standards, we're pushing the standards too high...so we're in a bind. And you wind up

looking, and all of a sudden one of your allies is the chlorine industry – oy!

They're the prime culprit and all of a sudden they are our big buddies... So it's a real serious problem there which people like to kind of overlook, but at some point you have to face it. (J. Klotz, interview, February 13, 2004)

Although the Sierra Club remained an ally of the Croton Coalition in opposing filtration, and probably one of the most significant ones due to its resources, recognition and status, its participation was inconsistent. The Club's efforts suffered from turnover in volunteer leadership, and staff support that was divided among many different issues. Marian Rose was the Sierra Club's most active local leader on watershed issues. After she turned her attention to the Croton Coalition the Club was less engaged in watershed issues (J. Stouffer, interview, December 21, 2005). The new Sierra Club volunteer who took the lead on the filtration issue had difficulty maintaining relationships with both the Bronx contingent and the Croton Coalition. Thus, although it was the Coalition's closest ally among the three national environmental organizations involved in the New York City water system, the Sierra Club did not play a strong, consistent role in the conflict over filtration.

Natural Resources Defense Council (NRDC)

A second national environmental organization, the NRDC, was involved with drinking water issues at the national level and had been involved in New York City water issues since its founding in 1970. Eric Goldstein, who led NRDC's efforts in this area, was one of the two most visible advocates for New York City water. Along with Robert Kennedy, of Riverkeeper, he was often quoted in the media. Illustrative of NRDC's

important role in advocacy for New York City water was that the first meeting to organize the Croton Coalition took place at NRDC's headquarters.

When the Croton Coalition began to challenge the need for filtration for the Croton watershed, the leaders of the Coalition hoped that NRDC would join them. NRDC, unlike Riverkeeper, was not a signer of the New York City Watershed Memorandum of Agreement, and Eric Goldstein had criticized the terms of that agreement. At first NRDC did not declare itself on the issue of filtration for the Croton. But in May 2003, NRDC made a public statement in favor of filtration (Johnson, 2003). This was seen as a significant betrayal by many opponents of the filtration plant, and was especially galling because the timing of the statement was interpreted as support for the siting of the filtration plant at the Mosholu Golf Course in Van Cortlandt Park. This incident is representative of the conflicts that can arise between national, more bureaucratized environmental organizations and grassroots organizations based on different priorities, scales of operation and organizational maintenance considerations (Dowie, 1996).

In 2003, when NRDC made this public statement, NYC DEP was trying to procure approval to build the filtration plant at the Mosholu Golf Course site in Van Cortlandt Park. This required approval of alienation legislation by the New York State Legislature. As we saw in Chapter 3, New York City was not assured of obtaining this legislation. According to Goldstein, NRDC was approached by NYC DEP Commissioner Christopher Ward with a request to support the need for filtration of the Croton water supply. Goldstein believed that the NYC DEP had "botched the public relations" of filtration by consistently maintaining that the Croton water supply was

meeting water quality standards and failing to put the public on notice about the need for filtration in the future. Goldstein told Commissioner Ward that the NYC DEP needed to make a clear scientific case that filtration was necessary. In response, the NYC DEP issued a “white paper” justifying the need for filtration. NRDC asked ten water quality scientists to review this paper. According to Goldstein, eight water quality scientists responded and endorsed the need for filtration of the Croton. In explaining his position to me, Goldstein said:

...I love these groups (like the Croton Coalition) and what they stand for in terms of watershed protection. I wish it were possible to have found a way in which it were not necessary to filter this, but ultimately we have to listen to the predominant view of the scientific community which was that from a public health standpoint it was necessary that the system be filtered. (Eric Goldstein, interview, June 20, 2005)

Goldstein emphasized to me that NRDC’s position was based on the “scientific consensus” and the “precautionary principle.”

NRDC’s statement, which was joined by Environmental Defense and the League of Conservation Voters, was announced by the NYC DEP in a context that suggested that the three organizations supported building the filtration plant at the Mosholu Golf Course site in Van Cortlandt Park. Goldstein denied that it had been the intention of NRDC to support the specific site in Van Cortlandt Park. Goldstein told others that he was angry at the Commissioner for making it look like NRDC supported the site (Eadie, interview, March, 12, 2004). But Goldstein told me merely that he felt it was unfortunate that it had been made to appear that NRDC supported the siting. He emphasized that NRDC does

not take a position on siting issues, and that he hoped that the community near the site would be treated fairly. But others felt it was clear that NRDC had supported the siting. John Stouffer, the Sierra Club's Atlantic Chapter Legislative Director, said that NRDC did not participate in the coalition of organizations that lobbied the state legislature in opposition to the passage of the alienation legislation that would allow the Mosholu Golf Course site to be used, and that NRDC's support had definitely facilitated the siting. NRDC and the other two organizations' official position may have been neutral on the siting, but it "translated as support" (J.Stouffer, interview, December 21, 2005). The Croton Coalition activists derided the NYC DEP's May 2003 white paper justifying filtration as a fluff piece lacking in scientific data and even footnotes. They characterized the NRDC's scientific review as being purely for political cover, since they felt that no scientist could make a reasonable determination about the filtration issue on the basis of such a report.

It is important to note that at other times the Croton Coalition worked together with NRDC. As we have seen in regard to the Sierra Club, NRDC had resources that the Croton Coalition lacked, such as relationships with the NYC DEP and credibility with the media. The Coalition credited NRDC's intervention with forestalling an expansion of Route 120, a road which passes over the Kensico Reservoir, a critically important issue of watershed protection. The Kensico is the terminal reservoir for the West of Hudson system, which means that most of New York City's water passes through it. Although it contains water from the Catskill and Delaware systems, the Kensico is located in Westchester County within the Croton watershed. Paul Moskowitz, the Croton Coalition activist, described NRDC's role in that case:

The DOT [New York State Department of Transportation] wanted to make Route 120 from a little country lane into a highway, which would have just helped the cause of development along the shores of the reservoir, aside from the polluting of the highway directly. And it was the watershed coalition [the Croton Coalition] that started the opposition. When the DOT first started hearings, we were the people who showed up, and then the Riverkeeper, and then NRDC, and eventually it was the intervention of the NRDC which really helped. It's been very difficult for us, as the watershed coalition, to get national groups like the NRDC on our side, because they bought the argument that the Croton water needs to be filtered. They appear to have, although we are still working on bringing them around... (P. Moskowitz, interview, April 4, 2004)

The cooperation over this issue illustrated the collaborative relationship between NRDC and the Croton Coalition, but also that NRDC was primarily interested in the success of filtration avoidance for the West of Hudson watersheds. As an organization involved at the regional scale, and concerned with the entire New York City water system, NRDC's first priority was the West of Hudson watershed which provided most of New York City's water and for which New York City had secured a filtration avoidance determination. NRDC, as an organization that had been involved in lobbying for the federal water laws under which filtration was required, may have also weighed its commitment to implementation of these laws at the national scale in making its decisions. As noted above, NRDC had been involved in water quality water issues at the national level since its founding in the 1970's. In November 1977, an NRDC publication entitled Our Children at Risk, stated that drinking water was one of the five worst environmental

threats to children's health. And in June 2003, NRDC published an analysis of problems with drinking water entitled, What's on Tap: Grading Drinking Water in US Cities. The relationship between NRDC and the Croton Coalition is an example of the multiple levels of relationships between national, bureaucratized environmental organizations and grassroots organizations, as well as of how the different characteristics of these organizations may lead to their adoption of opposing policy positions.

Grassroots Anti-toxics and Environmental Justice Movements

In contrast to the Sierra Club and NRDC, which were national, professionalized organizations, we can situate the Croton Coalition within the large number of grassroots environmental organizations that emerged in the last decades of the twentieth century. Scholars variously define this phenomenon as beginning in the 1970's (Andrews & Edwards, 2005 citing Carmin, 1999) or the 1980's and 1990's (Glazer & Glazer, 1998; Mertig, Dunlap & Morrison, 2002). The emergence of these grassroots organizations came to the attention of the wider national public in 1978 following media attention to the issue of hazardous wastes at Love Canal, a working class white community, in upstate New York. As similar conflicts over hazardous wastes erupted across the country, the Love Canal issue came to be viewed as the symbolic origin of the anti-hazardous wastes or anti-toxics movement. Then, in 1982, the issue of disposal of toxic waste containing polychlorinated biphenyls (PCB's) in a landfill in Warren County, North Carolina, a black community, became the focus of community opposition. This conflict was viewed as the symbolic origin of the environmental justice movement. McGurty (2000) explores a series of reasons why this conflict became symbolic, including that the terminology of environmental justice received media attention for the first time, and that this conflict

inspired a spate of research regarding environmental injustice that documented the extent of the problem. The watershed movement, also of relevance to our case study, expanded in a similarly impressive fashion during this period and will be discussed separately. The role of Riverkeeper, the third environmental organization most involved in the filtration issue, will be discussed in relation to the watershed movement.

Scholars offer different interpretations of the roots and development of the anti-toxics and environmental justice movements as well as of the relationships between them. Some emphasize the distinctions between these movements' constituencies. The anti-toxics movement was made up primarily of organizations established in working, lower and lower-middle class white communities. The term environmental justice was adopted by organizations of people of color. In Chapter 1 I have described the roots of this movement in protests against environmental conditions that stemmed from racial oppression, or were tolerated due to the racial composition of the affected community. As we have seen, siting of noxious facilities in communities of people of color has been an important issue for environmental justice activists and is an important issue in the current case. Some scholars also describe the environmental justice movement's societal critique as more extensive as a result of the sub-altern position and awareness of its members (Di Chiro, 1998). Both movements have engaged women in far greater numbers, and more frequently in leadership roles, than the national environmental organizations (Freudenberg & Steinsapir, 1992; Gottlieb, 1993).

Other scholars see the two movements as components of one grassroots movement or sector that encompasses resistance to various manifestations of environmental injustice (Szasz, 1994; Brown & Masterson-Allen, 1994; Dryzek, 1997;

Gottlieb, 1993; Mertig, Dunlap & Morrison, 2002). These scholars offer varying interpretations of the significance of the movement. Freudenberg and Steinsapir (1992) identify four principles or beliefs that were shared by the grassroots organizations. These were: (1) strong belief in the right of citizen participation in decision-making; (2) human health rather than wilderness preservation as the primary concern; (3) an ambivalent attitude toward scientific expertise; and (4) questioning the belief that economic growth ultimately benefits everyone. For example, Szasz (1994) views it as the latest manifestation in American history of opposition to business and big government. He calls it radical environmental populism, distinguishing it from other kinds of environmentalism. Gould, Schnaiberg and Weinberg (1996) see it as an expression of local communities attempting to assert their democratic rights as citizen-workers. Gould, Schnaiberg and Weinberg emphasize that local community organizations protesting environmental injustices may include people of diverse social locations, even including investors and employees of large corporations who participate as local citizens. They suggest that it is thus inaccurate to identify this movement as populist. Their insight is relevant to the Croton Coalition which encompassed this kind of diversity.

In any case, the organizations that made up the grassroots movement generally did not identify themselves with the environmental movement. The leaders of grassroots organizations distanced themselves from what they perceived as the narrow agenda and demographics of the national environmental organizations (Mix & Cable, 2004). White (1996) described this distance in a now classic essay entitled, “‘Are You an Environmentalist or Do You Work for a Living?’ Work and Nature.” Concerned with issues that affected their communities directly, the leaders of grassroots organizations

worried that the label of environmentalism would marginalize them (Tesh, 2000). This was despite the fact that many of their arguments and allies were drawn from the environmental movement. Similarly, David Ferguson said of the Croton Coalition,

Of course we are an environmental group, but we don't really like to be called that. I come from housing, which is environmental justice because people have a right to have a home. We have community groups. Suzanne is connected with the NAACP... Environmentalists are seen as an interest group, but we can't separate it from life. We've got to think of it in a larger way...saying you're an environmentalist boxes you in. When you say you're an environmentalist, people say "that's great," meaning that they're glad you're taking care of it. ...It's dangerous to disassociate the environment from everything else. ...We're not focused on spotted owls, we're focused on the whole enchilada (D. Ferguson, interview, December 23, 2005).

As we have seen, some of the Croton Coalition activists from Westchester similarly distanced themselves from the environmentalist label. Paul Moskowitz, the board member from Yorktown, called himself a community activist (P. Moskowitz, interview, April 4, 2004). These comments echo the environmental justice movement's mantra that the environment is where people "live, work and play" (DiChiro, 1996).

In addition to the issue of their relationship to the national environmental organizations which we have already begun to explore in this chapter, the grassroots organizations had two characteristics of particular relevance to this case study. These two characteristics are the place-based nature of grassroots activism and the grassroots organizations' critique of the industrial production system.

Regarding the first characteristic, in contrast to the national environmental organizations, the grassroots environmental movement was made up of organizations that emerged out of local, place-based struggles. Activists have emphasized, and scholars have also noted, that a sense of attachment to place and concern for its protection or defense is a motive force of environmental activism (Hays, 1987, p529). The centrality of this motive is a major distinction between the policies and strategies of national, professionalized environmental organizations and grassroots organizations. As Harvey (1999) notes, the division between the established, bureaucratic, national organizations and the environmental justice movement “reflects class, race and gender. It also reflects an intense politics of place versus the more abstract politics of the mainstream environmental movement” (p. 158).

The personal connection to place provides a powerful impetus for activism. Some activists have contrasted single-issue activism with place-based activism, describing place-based activism as more holistic, melding environmental, social and political concerns (Shutkin, 2000). This place-based activism has been a factor in the growth of what has been called community-based environmentalism or civic environmentalism (other factors are the complexity of addressing a diffuse source of pollution and devolution as a response to resistance to regulation expressed by politically influential polluters). These are policy-making efforts that promote collaborative, individualized solutions to environmental problems involving land-use for specific places (Kemmis, 1990; Shutkin, 2000; Landy, Susman & Knopman, 1999). The phenomenon of local political reactions against threats to places has provoked scholarly study of the significance of place (Relph, 1996). Understanding of this phenomenon is informed by

research by environmental psychologists about perception of place, place attachment and place identity (Chawla, 1992; Low and Altman, 1992; Proshansky, Fabian & Kaminoff, 1983). The connection to place has also received attention from conservation psychologists concerned with how to increase the public's involvement in protection of the environment (Cantrill & Myers, 2003). The field of environmental education also has explored how to strengthen students' connections to places for the purpose of motivating environmental activism (Thomashaw, 2002).

Activists and scholars both note that place-based activism does not mean parochial activism. As discussed in Chapter 3, place-based activism is often denigrated as NIMBYism. However accounts of the grassroots toxics and environmental justice movements stress that activists frequently reach the conclusion that fighting off the siting of a noxious facility only to see it be sited elsewhere is not a satisfactory solution. The politics of NIABY grew out of this realization (Szasz, 1994). The Croton Coalition drew its strength from the commitment of its activists to their local places, whether in the Bronx or in the watershed counties, as we saw in Chapter 3. But from the first, the Coalition also struggled with the implications of what it meant to protect the multiple places to which its activists were committed.

Regarding the environmental critique of the industrial production system, an important contribution of the grassroots movement was its focus on urban environmental problems. These problems, and various attempts to address them, were not new. But in the late nineteenth and early twentieth century they had been defined as issues of public and occupational health. In the early years of the twentieth century these issues had become the purview of public health professionals and other specialists (Gottlieb, 1993;

Steinberg, 2002). Consequently, the national environmental organizations that grew out of the conservation movement did not include urban issues within their purview. By focusing grassroots efforts on the environmental problems confronted in everyday life, the grassroots movement redefined environmentalism and opened the door for environmental activism directed toward problems of urban water supplies and suburban watersheds such as those that were the focus of the controversy over filtration (Gottlieb, 1993; Greenberg, 2000).

Drawing on the work of earlier movements to improve public health and reduce the negative effects of industry, the grassroots organizations were influenced by new critiques of industrial production, the influence of technology in society, and capitalist political economy by important figures such as Ralph Nader and Barry Commoner. Nader and Commoner, among others, provided the movement with a coherent analysis of the sources of waste and a framework for understanding the connection between ecology and the specific threats to human well-being (Gottlieb, 1993). The combination of these ideas with the practical necessity of establishing a politics that did not pit communities against each other, resulted in a growing commitment to pollution prevention as the solution to the problems of waste disposal. Szasz (1994) credits the grassroots environmental movement with significantly advancing the cause of pollution prevention through its tactics of increasing the costs and risks of waste producers. This was achieved despite minimal progress in instituting federal policies to address these problems. Grassroots activists found that the mere threat of protest, litigation, and increased regulation persuaded producers to improve their practices. The Croton Coalition applied these ideas about prevention to water pollution and made the practical

point that prevention could provide an opportunity to avoid the dilemma of where to site the undesirable filtration facility. However, as we have seen, it turned out to be difficult to apply these ideas to the issue of drinking water filtration which is usually viewed purely as a public health measure and not as an environmental issue.

Watershed Movement

As we have seen, the Croton Coalition shared some of the concerns and characteristics of both anti-toxics and environmental justice organizations. In addition, the Coalition's focus on watershed protection placed it within another sector of the environmental movement - the watershed movement. This movement expanded rapidly in the 1980's and 1990's. Based on the directory of the River Network, an organization that supports watershed organizations, there were some 3600 watershed associations in the United States in 2000 (Lubell, Schneider, Scholz & Mete, 2002; Griffin, 2000). Although this movement has not attracted the same degree of attention from scholars of the environmental movement, it should also be viewed as expression of grassroots environmentalism alongside the anti-toxics and environmental justice movements.

Like anti-toxics and environmental justice organizations, watershed organizations have a place-based focus, although they define their area of activity as a water body or watershed rather than a neighborhood or community. Bio-regionalism was one source of inspiration for this movement. As Nelson and Weschler (2001) explain, "This perspective sees the watershed as an organic boundary for community life, stresses the intrinsic value of natural places, and aims at preservation and restoration of natural systems. The bioregional approach also affirms spiritual and cultural dimensions of place. This approach is partly aesthetically appreciative and interpretive, but also critical

and transformative in its use of these symbols as ways to see beyond the empirical, instrumental aspects of place” (p. 16). Historically, the watershed movement can be seen as a grassroots response to urban sprawl and suburbanization (Woolley, McGinnis and Kellner, 2002). The degradation of water bodies and water quality are one of the effects of sprawl that threaten everyday life in communities. (For a fascinating account of the reaction of suburban residents to water quality problems, see Rome, 2001.) The watershed movement is motivated by hopes that regionally-based approaches can be more successful at protecting ecosystems than are piece-meal approaches that characterize more conventional management efforts.

Although research on watershed activism remains sparse, studies of watershed organizations in various states and regions have begun to form a picture of these groups (Cline & Collins, 2002; Griffin, 2000; Wooley, McGinnis & Kellner, 2000; Draeger, 2001). A study of watershed organizations in California concluded that watershed activists “tend to be rooted in particular places and are politically active. We find that values shape the role of science in planning and decision making. Watershed activism should be understood as the politics of place. The politics of watershed organizations includes a place-based sensibility with “situated” scientific understanding” (Wooley, McGinnis & Kellner, 2002, p. 135). The watershed movement may properly be viewed as part of an expansion of citizen participation that resulted from the new rights included in the environmental legislation of the 1970’s such as the National Environmental Policy Act and the Clean Water Act (Sirianni and Friedland, 2001).

Growth of the watershed movement has been a result of the efforts of grassroots activists, but has also been encouraged by the US EPA as a response to the complex

challenges presented by non-point source pollution (Burger, 2004; Cline & Collins, 2002; Lubell, 2004; Nelson & Weschler, 2001; Lewicki, 2001; Griffin & Gannon, 2000).

Reducing point source pollution requires either voluntary actions by, or regulation of, specific sources of waste such as industrial polluters and sewage treatment plants.

Addressing non-point source pollution requires taking actions that will influence the lives of many people, such as restricting land uses, changing farming practices, and limiting the use of polluting substances such as fertilizers, pesticides and road salt. Collaborative watershed protection efforts are viewed as a way of obtaining political support for these unpopular measures and persuading people to comply with them.

Emerging in an era in which the federal government was committed to deregulation and devolution, watershed organizations have been encouraged as an alternative to the environmental policy process as it developed in the 1970's. Across the country many, and perhaps most watershed organizations were established by government agencies for the purpose of engaging stakeholders in developing collaborative or partnership approaches to watershed management challenges. Cline & Collins (2002) cite a study by Draeger (2001) that found that only 3 of 79 watershed organizations in Minnesota were not founded by local governments. Watershed partnerships have been criticized as neoliberal (Guldbrandsen & Holland, 2001) or neo-corporatist (Faber & McCarthy, 2001) efforts that obscure the power exerted by government and corporate stakeholders. However, there are also many oppositional watershed groups that use tactics of protest to further their goals (Andrews and Edwards, 2005).

The Croton Coalition was an example of how the idea of a watershed can provide a focus for identity and activism. As suggested by bio-regionalism, the Croton Coalition activists adopted the Croton watershed as a bounded area that could be recognized as a special place. Calling on the watershed as the focus of activism implied an organic relationship between residents of New York City, and Westchester and Putnam Counties. It established a common ground for the local, place-based concerns of activists from different communities. It also lent a moral gravity to the activists' cause, elevating their concerns as it made reference to the preservation of natural systems and valued features of the landscape. In terms of a strategy for addressing water quality, the Croton Coalition recognized the same challenge that regulators have responded to with collaborative approaches – that addressing non-point source pollution requires extensive public support. This was the motivation behind the Coalition's efforts to build a "citizens dual track." However, unlike many other watershed organizations, the Croton Coalition did not have the support of government. This research cannot answer the question of why this was so, but factors included the oppositional stance of the Croton Coalition regarding filtration, as well as the focus of federal, state and New York City agencies on the West of Hudson watersheds.

Riverkeeper

Riverkeeper, the third of the three environmental organizations that were significantly involved in the New York City watershed, was a leading organization of the watershed movement. Riverkeeper was formed in the 1960's as a grassroots, place-based organization established in New York State to protect and restore the Hudson River and its watershed. It had an activist orientation and was well-known for its confrontational

tactics. Over time it became professionalized and adopted a legal and scientific focus. Although it retained its local character, it also spawned an international movement of “waterkeepers” and founded a separate association to support similar organizations outside the United States (Cronin & Kennedy, 1997). Riverkeeper had a very visible public spokesman in Robert F. Kennedy Jr., and a close relationship with the Pace University environmental law clinic, which provided additional resources to support the organization’s litigation efforts.

From the Croton Coalition’s perspective, Riverkeeper presented a mixed picture as an ally. On the negative side, Kennedy was personally involved in the New York City Watershed Memorandum of Agreement negotiations and Riverkeeper was the lead player among the environmental organizations that signed that agreement. Thus he was complicit, in the view of the Croton Coalition activists, in the decision to filter the Croton. Although seemingly sympathetic to the Croton Coalition’s position against filtration, Riverkeeper never took a public position opposing filtration for the Croton water supply. This may have been a strategic decision not to support a cause that the organization perceived as being hopeless, and to focus instead on the goal of implementation of the New York City Watershed Memorandum of Agreement and retaining the Filtration Avoidance Determination for the West of Hudson watersheds from the US EPA.

On the positive side, from the Croton Coalition’s perspective, Riverkeeper focused on watershed protection and was the most active regional organization trying to protect water quality in the Croton watershed. Riverkeeper’s hard-hitting research and reports, Cops in Cuffs: The Failure of Enforcement and Security in the NYC Watershed

(Kennedy, 1999), Watershed for Sale (Kennedy, Sullivan & Postman, 1999) and Finger in the Dike - Head in the Sand (Kennedy, Odefey, Wegner & Yaggi, 2001), were important sources of information about the NYC DEP. As one Croton Coalition activist said, “Thanks to those papers I don’t believe anything that the DEP writes and I try to look underneath and see what they are really saying and what they are really doing.” Riverkeeper employed a lawyer who served as director of New York City watershed activities and as a liaison to the grassroots groups in the watersheds.

As with the NRDC, the Croton Coalition collaborated with Riverkeeper despite policy differences. Riverkeeper’s focus on the connection between water quality and land use, and its attention to NYC DEP’s enforcement efforts in the watersheds, dovetailed with the Croton Coalition’s goal of protecting the watershed and water quality. The Coalition often worked with Riverkeeper on opposition to development projects in the Croton watershed. A high point was the Coalition and Riverkeeper’s collaboration in opposition to the expansion of the General Electric campus located near the Kensico Reservoir. Riverkeeper filed a suit to stop the expansion and General Electric backed down (D. Ferguson, interview, December 23, 2005). In fact, despite the organization’s regional scope, and in contrast to NRDC, Riverkeeper focused most of its local efforts on stopping development in the Croton watershed where more development was taking place, rather than in the Catskill and Delaware watersheds.

Despite the high degree of cooperation between the Croton Coalition and Riverkeeper, some of the Croton Coalition activists were deeply disappointed by Robert Kennedy Jr.’s position on filtration. Frank Eadie described his understanding of Kennedy’s position and his feelings about it:

Bobby Kennedy was grateful we did it... [took the position against filtration for the Croton]. In general we've stayed in touch and worked with them [the environmental organizations] on Cat Del [West of Hudson] issues. And they have in general refrained from taking stances in favor of filtration – or at least in favor of filtration in the Bronx in Van Cortlandt Park. But they have also not been of help. Although Kennedy, for example, has included us in meetings he has held on Croton...to this day Kennedy's stance bothers me. He lives in the watershed, in Bedford. It's clear he is very involved in the Croton emotionally, his kids are growing up there. And he was on radio one day and they asked him, where is your favorite place, and he said "the Croton" [River]. (F. Eadie, interview, March 12, 2004)

The Coalition activists perceived Kennedy as the person who could have had the most persuasive voice on the issue of filtration, and his lack of support for their position was hard to accept. They took his lack of support personally, and they often attributed his position to his hands being tied by his participation in the New York City Watershed Memorandum of Agreement.

Riverkeeper seems to have considered taking a position against filtration for the Croton water supply, but in fact it never took the step of publicly opposing filtration. Several Croton Coalition board members who had discussed the issue with Kennedy felt that he was sympathetic to their position. In my discussions with Riverkeeper staff members, I also had the impression that Riverkeeper agreed with the Croton Coalition's assessment that filtration might not be needed, and that construction of the filtration plant would accelerate undesirable development. Riverkeeper also did not take a position on

the siting of the filtration plant. The key to Riverkeeper's position may have been a political calculation. Or, what one source told me in confidence, that while the Croton Coalition was able to take uncompromising stands, Riverkeeper had to be selective at expending resources and had to take care not to lose credibility by taking on fights it was bound to lose.

Conclusion

In this chapter I have situated the Croton Coalition within the environmental movement and contrasted the Coalition with the three environmental organizations most active in advocacy around the New York City water system. None of the three organizations took the role adopted by the Croton Coalition, each for its own reasons. Although the Sierra Club took the same stand on the issue of filtration as the Coalition, it did not maintain the same high level of engagement in the issue. In this case, the main reason may have been that the Sierra Club's most active leaders on the issue transferred their activities to the Croton Coalition. As part of a larger organization, the Sierra Club activists also divided their energies between multiple issues and functioned within a semi-bureaucratized system.

Of the three organizations considered here, NRDC was the most easily characterized as a bureaucratic and professionalized national environmental organization. Common criticisms of such organizations were reflected in NRDC's positions and activities. NRDC's positions prioritized the scale of the entire New York City water system, and perhaps also the national regulatory system, and it appeared to be willing to compromise in order to husband its social capital and achieve its objectives at this broader scale. It justified its position by calling on "the science," despite awareness of

how science was being contested in this case. It refused to get involved in the siting issue, despite awareness of the price to be paid by the Norwood community. Although NRDC was critical of the NYC DEP's management of the water system and of the siting process, NRDC chose to stay away from the siting issue – and even allowed itself to be used to justify the NYC DEP's decision.

Riverkeeper was an important ally of the Croton Coalition. The organization's focus on the protection of the watershed dovetailed with the Croton Coalition's concerns. Riverkeeper had a staff person devoted to New York City watershed issues, who focused mostly on the Croton watershed and was able to be involved in many of the individual development battles that so engaged the Coalition. However, as a bureaucratized and professionalized organization with a focus on litigation, Riverkeeper's strategy was to pick and choose its battles. This was a disappointment to the Coalition which was formed precisely to take on what might have appeared to others to be a lost cause from the beginning.

As we have seen, all three groups were influenced by the sorts of organizational constraints that have been identified as limiting the freedom of national, professionalized organizations (Brulle, 2000). Each of the three took a somewhat different position on the Croton filtration issue. In contrast, as a single issue organization of volunteers, the Croton Coalition was unconstrained by a prior history with the issue, commitments at a broader scale, prior compromises, general policies that might or might not have been applicable in this particular situation, the need to maintain the credibility of their organization, or the need to husband resources for battles they were more likely to win.

The Croton Coalition was free to take a position against filtration and the siting of the plant in the Mosholu Golf Course, and to pursue these positions relentlessly.

The Croton Coalition's diverse constituency was an important factor in determining its positions. The grassroots environmental movement, and particularly the environmental justice movement, has focused attention on the way that who is at the table determines what issues are considered and what positions are articulated. The concern of the movement is often with the poor and people of color who bear the burden of environmental inequities. These inequities are intertwined with other kinds of political and social oppression. The Coalition included such voices, and their participation did influence the Coalition's position (as well as contribute to internal tensions). The Sierra Club also responded to these concerns and opposed the siting in Norwood. But Riverkeeper and NRDC, which were professionally-directed organizations that did not need to respond to these concerns, did not actively oppose the siting.

It is significant that neither Riverkeeper nor NRDC took a public position on the siting of the plant. This is an important difference between these environmental organizations and the Croton Coalition (and the local Sierra Club branches). The stance of Riverkeeper and NRDC is an example of the kind of position criticized by the environmental justice movement, which argues that elitist environmental organizations ignore the concerns of oppressed communities. Their stance dismissed the concerns of the Norwood community in favor of what they perceived as a greater purpose. While these organizations could perhaps take this stand because they did not have to consider the views of the community, the Croton Coalition was in a different position due to its membership and its position opposing filtration anywhere.

Despite the contrast I have drawn, it should be noted that this case study reveals the inadequacy of conventional categories such as “mainstream” and “grassroots” to characterize environmental organizations. Although scholars referring to these categories sometimes do so with a caveat (Pulido, 1996, citing Dunlap & Mertig, 1992), sweeping generalizations still abound in the literature. Andrews and Edwards (2005), in their analysis of local environmentalism, point out that the preponderance of research on the national level as well as the tendency for scholars to examine single sectors in isolation have led to an excess of dichotomizing generalizations about the environmental movement. As has been noted by Bullard (1993) and others, there is a coalescing of agendas discernible in the environmental movement. During the 1980’s, for instance, many of the national environmental organizations adopted issues that had been brought to the fore by grassroots organizations, and they began to establish programs to help local groups to organize (Gould, Schnaiberg & Weinberg, 1996; Szasz, 1994). My research provides another example of how organizations that may be primarily identified with a certain sector and may have significant differences can at times collaborate with each other.

The contrast between the Croton Coalition and the other environmental organizations involved in the Croton filtration controversy reveals the unique role played by the Coalition and its necessity. This role was contingent, a result of the diverse constituency brought together within the Coalition. But it also reflected possibilities inherent in grassroots activism that are not shared by more bureaucratic and professionalized environmental organizations.

Chapter 5: Grassroots Contributions to a Sustainable Urban Future

I began this research to learn why and how people respond to environmental problems. I became intrigued by the case of the Croton Coalition and its struggle against filtration for at least two reasons. One reason was that it promised to open a window into the complexity of environmental policy-making. Here was a case involving conservation, urban sustainability, and environmental justice, among many other issues. The second reason was that the case seemed hopeful. I was excited about the potential contribution of a grassroots coalition established to advocate for a win-win-win solution – a win for urban water consumers, for suburban watershed residents, and for ecosystems. The case of the Croton Coalition proved to be a good choice, providing me with insights about the nature of environmental problems, emerging responses to these problems, and the political obstacles to turning new approaches into policies.

In this chapter I discuss a number of issues that emerged as central in my research about the Croton Coalition. This case provides many lessons that are applicable to other controversies about complex environmental challenges. It also raises questions deserving of further research. Here I focus on the unique and important role that grassroots organizations play in reframing policy questions and introducing new ideas into the policy-making process; my use of the concept of scale to illuminate controversies over environmental policies; and the potential of, and challenges to, place-based and coalition organizing. The chapter ends with discussion of the implications of this research for New York City's water system.

Reframing of Filtration

This research documents the Croton Coalition's efforts to reframe filtration as an environmental problem, rather than a solution. The reframing of policy issues is a critical first step in the emergence and adoption of new approaches to environmental problems. This account of the Croton Coalition's arguments and activities provides an example of how this process occurs. It also raises issues about filtration as a policy and technology that deserve attention in light of emerging developments in the management of water supplies.

As we have seen, until the Croton Coalition came along, the need for filtration of the Croton water supply was basically unchallenged. The NYC DEP and the US EPA claimed that filtration was a necessary public health measure. Their perspective was that pollution was the inevitable result of development, and thus filtration was unavoidable. From their point of view, the controversy was not about filtration but about where to site the filtration plant.

The Croton Coalition reframed filtration as an environmental policy issue. The Coalition activists claimed that the real policy issue was not where to site the plant, but whether it should be built at all. They claimed that the real issue was whether the watershed's natural filtering capacity could be preserved. They called the filtration plant a technical fix that would worsen the problem it was designed to solve by encouraging more pollution. As we saw in Chapter 2, the Coalition's arguments reflected emerging environmental ideas. I argue that the Coalition reframed the choice between filtration and watershed protection as a choice between application of a technical fix to the problem of pollution and application of the precautionary principle.

My account of the Coalition's argument against filtration, and the difficulties that it faced in making this argument, illustrates the obstacles to adoption and implementation of the precautionary principle in response to environmental problems. The sheer difficulty of explaining the argument was the first of these obstacles. Some environmental problems are obvious. But what are the risks of treating water to protect public health? The answer is that the risks lie in the unintended and long term consequences. Filtration is good for public health when viewed in the short run, but in the long run it may undermine long term environmental quality goals. The most important of the unintended consequence of filtration may be that it can induce further development in the watershed. Implementing the precautionary principle requires us to see problems in a broader perspective. Solutions require moving to higher scale, taking the long view, and taking into account the interests of future generations. When viewed through the lens of the precautionary principle, the most appealing solutions usually involve creativity, innovation and the cooperation of many partners. Since they require changing the usual way of doing things, they always involve stepping on the toes of vested interests that have benefited from doing things the old way (Cooney, 2004; Jasanoff, 2003; Jordan & O'Riordan, 1999; Tickner, 1999).

So we see that implementation of the precautionary principle involves changing both people's perceptions of problems, and changing their behavior in response to these problems. While all solutions to environmental problems require changing human behavior, consideration of the precautionary principle may raise the stakes considerably. From this perspective, its implementation presents challenges to every discipline that

seeks to understand how human behavior can be changed at every level, including my own discipline of environmental psychology.

More specifically in terms of water management, the Croton Coalition's novel arguments against filtration raised significant concerns about the use of this technology that deserve consideration. For example, the Coalition highlighted the connection between filtration and land use, arguing that filtration diminishes incentives to preserve open space. The Coalition also brought to light questions about the wisdom of continuing to invest heavily in technological fixes. The Coalition argued that investments in broader scale ecosystem protection would create greater long term equity for New York City and surrounding communities. But these kinds of investments are difficult to carry out under current regimes. These issues deserve further research and public attention.

Unique Role of Grassroots Activism

This research documents the unique role that the Croton Coalition played in the controversy over filtration, and argues that the Coalition was able to play this role because it was a grassroots organization. But the Coalition faced immense hurdles in bringing its perspective into the policy process, precisely because it was a grassroots organization. Thus this case raises important questions about how grassroots voices and new ideas can be incorporated into the policy process.

As we have seen, in contrast to the government agencies responsible for New York City's water supply, the Croton Coalition took the position that filtration could be avoided for the Croton water supply. The Coalition identified filtration as an unnecessary technological intervention that would be likely to accelerate deterioration of water

quality. The Coalition's position highlights the dynamic relationship between human activities and natural processes in the watershed, particularly the relationship between land use and water quality. But unlike the NYC DEP and other regulators, the Coalition emphasized that this dynamic process could result in improvement of water quality at the source, rather than its deterioration.

The Croton Coalition's position was also unique among the environmental organizations most significantly involved in advocacy for the New York City water system. As we saw in Chapter 4, the Coalition's role in the filtration controversy revealed how differences emerge within the environmental movement between different types of organizations. Established, professionalized organizations play a different role in environmental controversies than grassroots organizations. They make different calculations about which particular positions are worth adopting, and their ongoing relationships with other participants in the policy process provide them with different opportunities for influence. In the controversy over filtration for the Croton water supply, even organizations that were involved in advocacy for watershed protection measures for the Croton watershed decided not to join the Coalition in advocating for filtration avoidance.

Since the focus of this research was the grassroots activism of the Croton Coalition, I did not explore the perspectives and actions of the government agencies and environmental organizations in great depth. Clearly it is important to complement my study with this kind of research. How do we understand the actions of these agencies and organizations? How can they be made more open to grassroots interventions and to significant policy changes, like the adoption of the precautionary principle? No research

of this kind has been done to examine the NYC DEP, although research about other water agencies generally characterizes them as resistant to change (Gottlieb, 1988).

Perhaps it is inevitable that bureaucracies such as government agencies and established environmental organizations will be less likely to bring new issues and policy proposals to the fore. These organizations make a different contribution to society by building ongoing relationships and providing resources to assure implementation of policies and programs. As we have seen, the Croton Coalition activists credited NRDC and Riverkeeper with providing crucial support for their efforts. However, if we accept that the role of these established organizations is different from that of grassroots groups, we must also recognize that grassroots organizations fulfill an absolutely critical role in the furtherance of environmental goals. This is a daunting conclusion in light of the experiences of the Coalition. It raises difficult questions about how to mobilize significant grassroots activism around environmental issues as complex and multi-dimensional as filtration, and how to make this activism more effective.

Scale as a Tool of Analysis

Analysis of this case would have been impossible without recourse to the concept of scale as it has been developed by scholars of political ecology and environmental justice (Bakker, 1999; Cox, 1998; Herod, 1997; Howitt, 2000; McGuirk, 1997; Silvern, 1999; Smith, 1992; Towers, 2000; Williams, 1999). This case highlights the relevance of scale as a concept that can illuminate controversies over environmental policies.

Scholars have challenged us to examine every environmental problem or controversy in terms of this concept: At what scale is this problem generated? Where is it manifested? Where should it be addressed? Contestation and negotiation are elements of the process

through which a problem is defined as occurring at a specific scale or scales. Viewing scale as produced, rather than as given, we recognize that new scales may emerge as part of this process. As the scale of a problem is defined, attention becomes focused on solutions at that scale. Solutions at other scales may be ignored. As new participants enter the controversy, they may challenge the assignment of the problem to a given scale. This research explores how the Croton Coalition challenged the construction of the filtration issue at a particular scale. It raises questions about what it takes to get others to imagine and address a problem at a specific scale and what the consequences of rescaling are. These are questions that enable us to explore the production of scale as a political tactic.

The formation of the Croton Coalition is an example of rescaling as a political strategy. At first, when the founders of the Croton Coalition in the northwest Bronx were faced with the construction of the filtration plant in the Jerome Park Reservoir, they accepted the NYC DEP's definition of the problem as being about where to site the plant. Viewed from this perspective, the controversy was only of local interest, and the problem could only be solved at the local scale. The question was about which neighborhood would get the unwanted filtration plant. The Coalition's founders redefined the scale of the problem by focusing attention on the need for filtration. They recognized that if the water could be kept clean, there would be no need for the plant. But to keep the water clean, New York City would have to have the support of the communities where the water came from. Protecting the watershed to a great extent depended on the actions of towns in the watershed. Seeking allies in these communities, the founders created an organization that could address the problem at the watershed scale.

The Coalition's success in attracting support in the suburban communities in the Croton watershed, that is at the scale of the watershed, is a striking example of how regional dynamics in the management of water were changing during the period of my research. Many studies of urban water systems emphasize conflict between cities and the regions that provide them with water in a kind of populist narrative of exploitation of rural areas by cities (Steinberg & Clark, 1999). As in other places, the construction of New York City's water system between the 1840's and the 1960's created resentment in watershed communities that experienced displacement due to reservoir construction and had to observe regulations meant to protect the water supply (Calhoun, 1997; Galusha, 1999; Pfeffer & Wagenet, 2003). The negative response to the new watershed regulations proposed by New York City in 1990 was partly a result of this legacy. In deciding to filter the Croton water supply, NYC DEP was influenced by concerns about the difficulty of persuading communities to accept restrictions sufficient to protect water quality. As we saw in Chapter 2, the reality was more complex. Although developers opposed restrictions on land use, and local governments had concerns about the curtailment of their home rule prerogatives, the latter also saw some benefits in the new regulations and in the financial support for water quality improvements offered as an incentive to cooperation by New York City.

Factors that contributed to these changing dynamics have emerged in this research. One of these factors was the interest that watershed residents had in preserving the quality of their own environment. Activists on behalf of preservation of open space as well as protection of local water bodies, recognized that metropolitan water users shared their interest in curtailing development in the watershed. The Croton Coalition

activists drew attention to how New York City's watershed protection efforts also protected the water resources of communities and residents within the Croton watershed. Steinberg and Clark (1999) uncovered similar attitudes to the ones revealed in this research in a study of residents in communities within Boston's watershed. They describe how residents near the Wachusett Reservoir supported a more active presence of the metropolitan water management agency because they recognized that by protecting water quality and the water system, the agency was protecting their own quality of life. Pfeffer and Wagenet (2003) identified a similar evolution of attitudes in West of Hudson communities following the implementation of the New York City Watershed MOA of 1997. They found that following the conclusion of the New York City Watershed MOA residents expressed understanding of a community of interests with New York City in place of previous expressions of hostility.

These changes reflect the dynamic processes associated with the production of scale, and the particular promises and pitfalls involved in focusing attention at the scale of the watershed. As indicated in Chapter 4, both the government and grassroots activists are increasingly organizing their environmental protection efforts around watersheds. Watersheds recommend themselves for such purposes because they reflect the boundaries of ecosystems, rather than the boundaries of political jurisdictions. But defining the scale at which a watershed exists is as subject to human construction as any other definition of scale. Watersheds are nested within each other, and we choose where to draw the boundary between the watershed of the tiniest stream and the watershed east or west of the continental divide. As this case makes clear, promoting identification with a watershed does not ensure an identity of interests. Moreover, this case points to the

difficulties in promoting identification by urban residents with a remote watershed. Further research about the educational and psychological processes that can foster such identifications and inform watershed-based environmental protection efforts for urban areas is urgently needed.

Place-based and Coalition Activism

This case study provides insights into the nature of place-based activism, and how such activism may support or undermine political strategies based on a coalition model. The Coalition was founded by activists who responded to threats to their local communities stemming from New York City's policy on filtration. Despite the history of tension and conflict between New York City and the watershed communities, these grassroots activists joined together to advocate for a policy that could protect all of their communities. However the promise of this strategy was not fulfilled. At one point, many of the New York City groups left the Coalition and each side accused the other of selfishness and parochialism. And the Coalition failed to achieve its primary goal, forestalling construction of the filtration plant.

On the one hand, this research provides a rich account of how attachment to place can be a positive and powerful motivation for environmental action and a spur to join forces with others to protect shared natural resources. The Croton Coalition built on local activists' attachment to their communities to foster identification with place at a broader scale; the Croton watershed as a whole. In fact, like many grassroots activists in the environmental justice movement, their commitments to their local communities led them to pursue a strategy of NIABY (not in anyone's backyard) that had the potential to

benefit not only their own communities, but many communities that were not directly involved in the controversy.

On the other hand, the evolution of the Croton Coalition also raises questions about such place-based activism. One such question is about the parochialism of place-based activists. Attachment to place is often denigrated as NIMBYism (not in my backyard), which characterizes such activism as an exaggerated and parochial concern for one's own community. The watershed activism of suburban residents raises questions about the extent to which watershed protection may serve the class interests of the wealthy. Some watershed protection strategies, such as preservation of open space and zoning for large lots that reduces the potential for population growth in the suburbs, may also be used as strategies to prevent development of housing for people with lower incomes. These strategies may provide a pretext for exclusion on the basis of race.

Charges of NIMBYism were a feature of the controversy over filtration. Close attention to the motivations of the Croton Coalition activists reveals that accusations of NIMBYism fail to capture the complexity of their motivations and the wider benefits of the activities that they undertook on behalf of their own beloved places. The direct connection that the activists were able to make between construction of the filtration plant in the Bronx and the need for watershed protection, lent an unusual clarity to the Coalition's assertion of a community of interests between the urban and suburban residents. As indicated in Chapter 3, the inclusion of various organizations in the Croton Coalition led to the consideration of a variety of concerns. For example, the inclusion of the Housing Development Fund Cooperative Coalition led the Coalition to highlight the

impact of filtration and watershed protection on the cost of inner-city low-income housing.

While this case serves as an example of the value of place-based activism, it does raise questions about how coalitions made up of diverse place-based organizations can survive in a highly politicized and conflictual setting. Unlike many watershed organizations, the Croton Coalition was not formed by government to support government programs. Instead, it was formed in opposition to an established government policy on filtration. New York City employed a strategy of divide and conquer to undermine the Coalition's efforts. The City proposed alternative sites, which pitted neighborhood against neighborhood, and proposed alternative water treatment approaches which pitted the urban-based organizations against the suburban ones. This strategy is among the most obvious of ways to diminish the threat from any coalition. In response, the Coalition activists felt that they were forced to make choices within the framework established by New York City. In these circumstances, identification at the watershed scale competed with identification at the neighborhood or village scale for the allegiance of Coalition activists.

The environmental justice movement has emphasized the need for support and guidance, as well as new forms of organization that can help grassroots coalitions to remain cohesive in the face of outside pressures such as those faced by the Croton Coalition (Schlosberg, 1999). The Coalition's founders realized that a coalition that crossed urban-suburban and class boundaries would attract attention, and have the potential to address the problem of water quality at the regional scale at which it was produced. However, the founders did not appreciate the challenges inherent in such an

alliance. (For an example in New York City, see Checker, 2001; for cross-class coalitions, see Mix & Cable, 2004.) The Croton Coalition did not identify itself with any particular sector of the environmental movement. Some activists even felt that it was important to distance themselves from the environmental movement. Consequently the Coalition missed out on opportunities to obtain support and guidance. For example, the Coalition did not affiliate itself with the River Network, which links together watershed organizations, or the Center for Health, Environment and Justice (formerly the Citizen's Clearinghouse for Hazardous Waste, founded by Lois Gibbs), which supports anti-toxics and environmental justice organizations and emphasizes pollution prevention as a solution to problems of waste. The Coalition did not seek out assistance for coalition maintenance activities such as developing leadership and resolving conflicts; one source for such support is the Institute for Conservation Leadership. The Coalition focused its limited resources exclusively on external threats, not realizing that a strong coalition requires attention to internal cohesion if it is to survive (Minkler, 1997).

The trajectory of the Croton Coalition reflected both the growing realization of shared interests described above, as well as the differences in the relationship of residents of the watershed communities and New York City residents to the Croton watershed. This research documents the difficulties experienced by people who recognized common interests in addressing regional environmental problems and wanted to act cooperatively to address them. The problems faced by New York City residents and watershed residents at the local scale were linked through the issues of water quality and ecosystem protection more broadly. As we saw in Chapter 3, the founders of the Coalition recognized a possibility for regional cooperation going beyond what government

agencies believed possible. Given the regional scale of many environmental problems and the potential benefits from regional cooperation in addressing them, the experience of the Croton Coalition suggests that there is a need for more research about how such seemingly unlikely, but potentially fruitful, grassroots regional coalitions evolve and can have influence.

Changing Policy

The Croton Coalition failed to achieve its main goal. Despite a multi-faceted campaign maintained over a period of years, the Coalition was not able to stop the construction of the filtration plant. This result may be attributed to multiple factors including the timing of the Coalition's entry into the political process, the failings of the mechanisms provided for citizen participation in environmental decision-making, the influence and resources of the supporters of the filtration plant, the politics of New York City including the targeting of the Norwood community for the plant, and the Coalition's own internal weaknesses.

The Croton Coalition entered the scene too late, after the policy issue had been framed and the decision to construct the plant had already been made. This was an obstacle that the Coalition was unlikely to surmount in its efforts to achieve a policy change on the part of New York City. The Coalition activists found that their opportunities to participate in the process were structured by the NYC DEP, and mostly limited to opportunities to challenge the environmental impact statement prepared for the filtration plant. They could try to raise questions about whether filtration was needed, but these were easily ignored since the issue on the table was only the selection of a site for the plant.

Furthermore, New York City had plenty of power and money to back up its decision. As we saw in Chapter 3, New York City promised that \$243 million dollars of water system funds would be distributed throughout the Bronx. These funds, allocated for capital improvements for parks, were categorized as amelioration payments to mitigate the impact of the construction of the filtration plant. And New York City had political support from people and organizations that would benefit from this vast construction project, including unions and construction firms. While touting the financial benefit to the Bronx, and the water quality improvements that would accrue to the entire City, the NYC DEP chose to locate the plant – and its attendant burdens – on a poor neighborhood with little political power.

The Coalition undoubtedly failed to accrue as much influence in the Bronx and in New York City as it might have. After the dissolution of the alliance between the organizations from New York City and the organizations from the watershed communities, the Coalition never regained significant support in New York City. The New York City contingent in the Coalition, made up mainly of organizations from the Bronx, had been led by the activists who had successfully sought to prevent the construction of the filtration plant in the Jerome Park Reservoir. After these activists became alienated by the Coalition's positions, they and their allies left the Coalition. Although the Coalition's leaders made some efforts to reach out to the Norwood neighborhood, where the new site chosen for the filtration plant was located, they were unsuccessful in engaging people and organizations there. The Coalition had lost both its credibility and its contacts in the Bronx. The Coalition also did not significantly expand

the number of city-wide organizations, or organizations based outside the Bronx, that were members.

In contrast to its lack of progress in derailing the construction of the filtration plant, the Coalition was considerably more successful in its efforts to advance watershed protection. The Coalition acted to protect water quality in the local communities throughout the Croton watershed, and encouraged other organizations and politicians to take such action. As we have seen, the Coalition played an important part in stopping or modifying individual development projects such as the expansion of Route 120 next to the Kensico Reservoir. The Coalition had numerous successes and was credited by knowledgeable observers, such as Eric Goldstein of the NRDC, with significant achievements:

CWCWC has had a very huge impact. Aside from this battle (over filtration), almost everything else they've done, they've been successful at. So they've been enormously successful at challenging local projects in the watershed, they have valiantly fought off some of the worst development proposals. (E. Goldstein, interview, June 6, 2005)

One indication of the Coalition's success was that during the years of the struggle over filtration, Westchester towns began setting aside their own funds to purchase and preserve open space. Paul Moskowitz, a Croton Coalition board member active in Yorktown politics, said, "Maybe 9-10 towns in Westchester have passed laws setting aside money to buy open space. So there are things you can do. It was said 7 to 8 years ago that people of the watershed - meaning the developers controlling the planning boards - are against limiting development. Now we see that people of the watershed,

when given a chance to vote, have voted to slow down development and buy open space...” (P. Moskowitz, interview, April 4, 2004).

The Coalition’s successes in furthering watershed protection may be attributed partly to the characteristics of the goal. While the Coalition activists achieved some encouraging successes in their campaign against the filtration plant, ultimately success was defined in terms of whether or not the plant would be constructed. Watershed protection, on the other hand, could be furthered by many small achievements. If one government agency was not responsive, they could move on to another one. While the Coalition was disappointed with the response of the NYC DEP and the New York State Department of Health to its proposals, it did make headway with the New York State Department of Transportation, county governments and town planning boards. If one development project was not stopped, the size of another one could be curtailed. The achievements were cumulative and no one defeat was definitive. As promoters of watershed coalitions have recognized, a coalition of local place-based activists and organizations is a good match for the distributed problem of non-point source pollution.

Another reason for the Coalition’s effectiveness in furthering watershed pollution was the political influence it accrued in the watershed communities. The Coalition’s leaders were in their element in the watershed communities. Most were politically active, some had held political office, and others were leaders in local organizations. They had the knowledge and connections to be effective in their own communities. They also had the advantage of being able to achieve their goals by working within the small polities of the watershed. Scholars of citizen participation have concluded that participation is usually more effective when it takes place at the local scale (Fiorino, 1996; Landy, 1993).

In the small towns within the Croton watershed, the Coalition was able to mobilize residents and have an influence in local politics. Something that is more difficult to achieve in a polity the size of New York City.

The Coalition's successes and failures challenge us to consider the implications for similar grassroots efforts that seek changes in environmental policies with a regional scope. The filtration issue is representative of many environmental challenges that are facing cities and involve the sustainability of regional ecosystems that have to be managed across jurisdictional boundaries. As we saw in Chapter 4, in organizing at the scale of the watershed the Coalition was joining a growing movement that has been encouraged by government to address such challenges. Like the Croton Coalition activists, grassroots groups across the United States have seized upon the idea that a watershed provides an appropriate geographical unit for efforts to protect ecosystems and quality of life. However it must be recognized that there have been many efforts in the past to organize water management efforts around watersheds. These efforts have usually failed because the boundaries of watersheds do not correspond to the boundaries of political jurisdictions (Rogers, 1993). It is not yet clear whether this new form of watershed organizing can overcome longstanding obstacles and the new ones they create.

The Croton Coalition's experience points to some of the potential and the pitfalls of organizing along the lines of a watershed. The Coalition's strategy was to create a grassroots force at the watershed scale that could accrue more influence than local neighborhood and community activists acting alone. Although the Coalition did have some success in creating a watershed-scale network of grassroots activists, this proved difficult to maintain. Urban and suburban residents who joined the Coalition were

motivated by different concerns. Despite their recognition of some common interests, they were unable to maintain a unified position. The political influence they accrued was insufficient to overcome obstacles in the policy process and the pressure exerted by their political adversaries, and to achieve policy goals that required action at the town, county, city, state and federal levels.

Finally, this case illustrates the lack of appropriate political frameworks for addressing regional environmental policy challenges such as those affecting the Croton watershed. In its efforts to stop construction of the filtration plant and promote watershed protection efforts, the Coalition found it was necessary to engage multiple political bodies at various levels of government but there were no effective governmental frameworks for discussion of the regional issues raised by the filtration controversy. Even the non-governmental bodies that might have provided a forum for these discussions, such as the Regional Plan Association of New York, New Jersey and Connecticut, did not do so. It is difficult to imagine that even the most effective regional grassroots coalition could succeed without governmental and non-governmental frameworks responsive to environmental challenges at this scale. This is not a new issue, but the Croton Coalition's experience serves as another lesson about the need for more robust regional frameworks for addressing environmental problems.

The Future of the New York City Water System

While this study has ramifications for many environmental controversies, the lessons it raises for New York City may be the most immediate. Reasonable people may differ about whether building a filtration plant for the Croton water supply is the right policy for New York City. But there is no question that watershed protection is crucial to

ensure good water quality over the long term, as the Croton Coalition has asserted. Simply put, the quality of the water before treatment determines both the extent of the treatment that is necessary and influences what the quality of the water will be after treatment. Some water cannot be made potable at any price. Deteriorating water quality could make the City's \$1.5 billion water filtration plant obsolete at some point, although this is unlikely. The NYC DEP acknowledged the need for watershed protection and claimed that filtration would not deter the agency from protecting water quality with a multi-barrier approach that includes land purchases, upgrades of sewage treatment plants and enforcement of regulations limiting development (M. Principe, interview, September 1, 2005).

However, as we saw in Chapter 2, despite these claims, watershed protection in the Croton was not as high a priority for New York City, New York State or the US EPA, as was protecting the West of Hudson watersheds. The NYC DEP's motivation for protecting the West of Hudson watersheds was provided by the desire to maintain the filtration avoidance determination (FAD) granted by the US EPA. In order to maintain the FAD, and continue to avoid filtration for the West of Hudson watersheds, the NYC DEP was required to report on its progress in implementing its obligations under the New York City Watershed MOA to New York State and the US EPA on a regular basis (New York State Department of Health & New York State Department of Environmental Conservation, 2002). Another cause for concern regarding the future of the Croton watershed was that the US EPA turned over primacy for the Croton watershed to New York State, and the New York State Department of Health was not aggressive about using its enforcement powers. This was in contrast to the situation in the West of Hudson

watersheds, where US EPA retained primacy in order to ensure that New York City would meet the terms of the filtration avoidance determination. Ironically, the Croton watershed was not receiving the same level of attention, precisely because it was more populated, considered to be more degraded, and filtration was planned. Although environmentalists and the NYC DEP agreed that watershed protection would still be important after construction of the filtration plant, it appeared that the NYC DEP had greater motivation to protect water quality in the West of Hudson watersheds where the goal was to avoid filtration.

The NYC DEP, NYS DOH and the US EPA were concerned with New York City's entire water supply. For them, focusing on the West of Hudson watersheds that supplied up to 90% of the City's water seemed an obvious choice. Unlike them, the Croton Coalition was focused on the scale of the Croton watershed. The Coalition brought attention to the unintended negative effects of the regulatory process that resulted in the short-changing of the East of Hudson watershed. The Coalition pointed out that the regulators and management agencies were focused on the relatively undeveloped West of Hudson watersheds while threats to water quality from previous and continuing development were more severe in the East of Hudson watershed.

The Croton Coalition brought to public attention the NYC DEP's slow progress in implementing watershed protection programs that it had committed to undertake in the Croton watershed. The NYC DEP lagged in many areas, including protection of land from development through purchase and the use of land trusts, and in implementation of sewage treatment plant upgrades. The New York City Watershed MOA provided for \$17.5 million to be spent on land purchases in the Croton watershed. (An additional \$25

million was pledged later.) However, from the signing of the MOA in 1997 until 2004, the DEP had only acquired 443 acres in Westchester and Putnam counties at a cost of \$7.4 million (CWCWC Croton Management Plan, 2004). The Croton Coalition estimated in its management plan that it would cost \$250 million to purchase 30,750 acres in the watershed, enough to reach a general guideline for protection of 25% of the watershed (CWCWC Croton Management Plan, 2004). The Coalition argued that this was about the same amount as the \$243 million to be provided for Bronx parks as mitigation for the construction of the filtration plant, and much less than the \$1.5 billion that would be spent to construct the plant. Environmental organizations, including NRDC and NYPIRG, also urged the NYC DEP to increase land purchases in the Croton watershed. But to my knowledge no other organization prepared an estimate of the amount of land that should be protected or of the cost of reaching such a goal. Another measure of the NYC DEP's lack of commitment to watershed protection was the agency's slow progress on upgrading of sewage treatment plants in the Croton watershed. These projects were put on hold awaiting the outcome of the debate over diversion of sewage outside of the New York City watershed to waste water treatment plants that discharge into the Hudson River, outside of the Croton watershed (Tierney, 2000).

While this research focused on the Croton watershed, the developments there can only be understood within the wider context of the entire New York City water system. As we saw in Chapter 2, a complex policy process led to New York City's decision to build a filtration plant for the Croton watershed while it sought to avoid filtration for the West of Hudson watersheds. This process led New York City to seek cooperation from the watershed communities through the New York City Watershed MOA of 1997. New

York City negotiated with the watershed communities about the implementation of watershed protection measures, and agreed to pay both for these measures and for economic development programs in the watershed. The New York City Watershed MOA has received international attention as an example of a major city adopting a policy that acknowledged dependence on ecosystems and communities on the regional scale (Chichilnisky & Heal, 1998; Daily, 2002; Wilson, 2002; Mas, 2004; Postel, 2005a, 2005b; see Sagoff, 2002 for an alternative view). My study provides some insights into the process through which this agreement was reached, but as the context within which the Croton Coalition operated the New York City Watershed MOA deserves much more extensive study. There has been no research that I am aware of about the negotiations that led to the New York City Watershed MOA, and only a few studies about its effects (some examples are Pfeffer, 2002; Pires, 2004; Stave, 1998; Stycos, 1999; Wagenet et al., 1999). Both are areas that deserve further research because of the important implications of this agreement for the future of the New York City region's ecosystems, patterns of land development within the watersheds, and the cost of water in New York City.

Looking Ahead

The New York City water system, often described as the city's greatest capital asset, is facing major challenges. Watershed protection programs and filtration are intended to ensure a clean water supply. The current programs have been designed to respond to the familiar threats from agricultural runoff, sewage, and non-point pollution from stormwater. As we have seen, New York City's progress in implementing these programs has been uneven. Now, in addition to the familiar problems, new threats to the water supply are developing such as pollution from pharmaceuticals and other chemicals.

There is also concern about the potential for collapse of the water system's decaying infrastructure, particularly a significant leak that has been discovered in the Delaware Aqueduct. Although water rates continue to rise, New York City may not have enough money to invest in the maintenance of its vast infrastructure. The Municipal Water Finance Authority has projected that by the year 2008, 56 percent of the water system's revenue will be devoted to interest payments on the system's debt (New York City Independent Budget Office, 2004). In the wake of the terrorist attack on the World Trade Center in 2001, security of the water supply has become a significant concern for the NYC DEP, leading to increased resources devoted to patrolling water infrastructure and other security measures.

My investigation of the Croton Coalition's involvement in the controversy over filtration leads me to the conclusion that New York City is not investing enough effort in watershed protection. It seems certain that ten years from now it will be obvious that the City should have made a more aggressive commitment to pollution prevention. New York City has taken pride in its planning for the future. It has frequently begun water supply projects that were expected to take decades to be completed. The perspective of the NYC DEP is bound to evolve, as is that of water management agencies around the world, from a focus on engineering and technical solutions to a broader focus on the management of water as a natural resource. As this occurs, it will become clear that water quality must be protected at the source, and the sooner the better. At the point when this evolution occurs, it will be clear that the Croton Coalition was a few years ahead of its time in advocating for the application of the precautionary principle to the issue of filtration.

Although the focus of this research was the Croton watershed, which did not receive the full benefit of the Agreement, the conclusion of the New York City Watershed MOA was a positive turning point for New York City. In the Agreement, New York City took an important step in the direction of acknowledging the regional dynamics involved in procuring its clean water. The City leadership recognized the critical importance of protecting water quality at the source and the role that people living in the watershed can play in preventing pollution. The controversy over filtration of the Croton water supply added another element to the process begun by the New York City Watershed MOA. This controversy brought the issue of sustainability of the water supply closer to home for New York City. Protecting the Catskill and Delaware watersheds was about protecting nature far away from New York City, in an area relatively unmarred by development. The Croton Coalition asserted that even the Croton watershed, close to New York City and more developed, could and should be protected. The Croton Coalition's assertion and actions challenge us to reconsider our assumptions about the potential for people to protect the nature we live with everyday.

Appendix I: Chronology of the Croton Filtration Controversy

1905

Recommendation that a filtration plant be constructed at Jerome Park Reservoir

1913

Funds allocated for construction of the Croton filtration plant, but plans are discontinued when chlorination is introduced

1971

NYC DEP conducts pilot studies of Croton filtration

1974

Safe Drinking Water Act passed by US Congress

1980's

Pilot filtration plant built by NYC DEP in the Jerome Park Reservoir

1986

Safe Drinking Water Act Amendments (SDWA) passed by US Congress

1989

Surface Water Treatment Rule (SWTR) added to SDWA by US Congress

1990

NYC DEP announces proposed new watershed regulations leading to negotiations for the New York City Watershed Memorandum of Agreement (MOA)

November 30, 1991

NYC DEP completes report on New York City's Long Range Water Quality, Watershed Protection and Filtration Avoidance Program to assess whether filtration is necessary (report is not released to the public)

October 30, 1992

NYC DEP signs stipulation with NYS DOH agreeing to build Croton Water Treatment Plant (CWTP)

December, 1993

Scoping hearings held for environmental impact statement (EIS) for CWTP to be built at Jerome Park Reservoir (EIS process is terminated in December, 1995)

January 15, 1993

US EPA adopts October, 1992 stipulation

March, 1994

Community Advisory Committee (CAC) for Jerome Park CWTP established by DEP

December, 1995

EIS process is terminated when Mayor Giuliani puts siting process for CWTP on hold and agrees to consider alternative sites

November, 1996

First meeting to discuss possible coalition takes place at NRDC offices

January, 1997

Croton Watershed Clean Water Coalition (CWCWC) is established at meeting at home of Marian Rose in Bedford, Westchester County

January, 1997

New York City Watershed Memorandum of Agreement (MOA) concluded

April 24, 1997

US DOJ sues New York City for violation of SWTR (97-CV-2154), action joined by New York State

May 19, 1997

Croton Joint Community Advisory Committee (CAC) established by NYC DEP with members from New York City and Croton watershed communities

June 18, 1997

CWCWC files to become intervenor in US DOJ action against New York City

October 18, 1997

CWCWC holds "Celebrate Clean Water," a public event

November, 1997

NYC DEP Extended Special Study Program completed by the Joint Venture of Metcalf & Eddy and Hazen and Sawyer evaluates non-filtration alternatives and suggests addition of alum at the Muscoot Dam as one component of water treatment plan that could substitute for filtration

February, 1998

Hearings begin for new EIS process for CWTP

April 27, 1998

New York City signs consent decree with US DOJ and New York State agreeing to build CWTP

May, 1998

Mosholu Golf Course in Van Cortlandt Park proposed as site for CWTP, in addition to 7 sites already under consideration, and added to scope of work for Draft Environmental Impact statement (DEIS)

July, 1998

Final Scope of Work for EIS for CWTP issued by NYC DEP

December 1, 1998

DEP announces choice of Mosholu Golf Course in Van Cortlandt Park for the CWTP

January 1999

CWCWC files own suit on filtration alternatives and participation because denied intervenor status US DOJ action against New York City

May, 1999

NYC DEP releases Final Environmental Impact Statement (FEIS) for CWTP

June 1, 1999

New York City Planning Council (CPC) approves Mosholu Golf Course site as part of New York City Uniform Land Use Review Procedure (ULURP) process despite disapproval of local community boards and Bronx Borough Board

June 6, 1999

CWCWC issues report on cost of filtration entitled "The Real Price of Filtration: Is it Worth it?"

July 21, 1999

New York City City Council grants approval to Mosholu Golf Course site

October, 1999

Norwood Community Action files suit claiming use of Mosholu Golf Course site requires legislation allowing alienation of parkland. Friends of Van Cortlandt Park also files suit and the two suits are combined and moved from New York State to Federal court at request of the New York State Attorney General

September, 2000

Trout Unlimited, New York Water Watch and CWCWC release study of stormwater runoff problems in the Croton Watershed

CWCWC launches website

May, 2000

Judge Gerson, Eastern District Court of Appeals, rules legislative approval is not needed for alienation of Mosholu Golf Course site

November 15, 2000

US Court of Appeals for 2nd Circuit rules that New York State Court of Appeals should rule on whether alienation is required for Mosholu Golf Course site

December, 2000

Bronx groups leave CWCWC

February 8, 2001

New York State Court of appeals rules that alienation of Mosholu Golf Course site for the CWTP must be approved by New York State legislature

May 10, 2001

Judge Gerson rules fines required by 1998 consent decree may be held in abeyance while New York City seeks approval for Mosholu Golf Course or an alternative site for CWTP

July 16, 2001

First Circuit Court of Appeals allows Massachusetts Water Resources Authority to avoid filtration for City of Boston's water supply

December 12, 2001

Supplement to consent decree obligates New York City to examine two additional sites in case alienation of Mosholu Golf Course site is not approved by New York State Legislature

May 23, 2002

US Army Corps of Engineers approves designation of Croton as critical resource waters after campaign by CWCWC

May, 2002

Consent decree modified to permit choice between three potential sites for the CWTP, Mosholu Golf Course and Harlem River sites in New York City, and Eastview site in Westchester

April 17, 2003

DEIS for CWTP is released

May 23, 2003

NYC DEP releases White Paper entitled "Why New York City Needs a Filtered Croton Supply"

May 23, 2003

New York Times reports that NRDC, New York League of Conservation Voters and Environmental Defense accept conclusions of NYC DEP White Paper and endorse filtration for Croton water supply

June, 2003

New York City City Council sends home rule message to New York State Legislature requesting approval of alienation legislation allowing construction of CWTP at Mosholu Golf Course site

June 20, 2003

Alienation legislation passed by New York State legislature on last day of session

August 22, 2003

Draft Scope of Work for Draft Supplemental Environmental Impact Statement (DSEIS) for CWTP released by NYC DEP

June 30, 2004

Final Supplemental Environmental Impact Statement (FSEIS) is released, identifying Mosholu Golf Course as the NYC DEP's preferred site for CWTP

July, 2004

NYC DEP announces selection of Mosholu Golf Course site for CWTP

August, 2004

Four lawsuits are filed with aim of preventing construction of CWTP at Mosholu Golf Course site by Friends of Van Cortlandt Park, Town of Eastchester, Bronx Environmental Health and Justice and CWCWC

December, 2004

NYC DEP begins work on the CWTP at the Mosholu Golf Course site

Appendix II: List of Interviews

Albert Appleton
Former Commissioner, NYC DEP
6/28/05

Karen Argenti
CWCWC
Friends of Jerome Park Reservoir
Former Chair Community Board 7
Bronx Council for Environmental Quality
5/6/04

Matthew Bennett
CWCWC
1/24/04

Aaron Bock
Former Yorktown Town Supervisor
9/2/05

Cathleen Breen
Watershed Protection Coordinator
New York Public Interest Research Group (NYPIRG)
1/31/06

Assemblyman Jeffrey Dinowitz and Ryan Miday, Chief of Staff
81st New York State Assembly District
7/25/05

Frank Eadie
CWCWC
Sierra Club
3/12/04

Ann Fanizzi
CWCWC
Putnam County Coalition to Preserve Open Space
1/29/04

David Ferguson
CWCWC
HDFC Coalition
12/7/01
12/23/05

Suzannah Glidden
CWCWC
Hands Across the Border
3/26/04

Eric A. Goldstein
Co-Director, Urban Program
Natural Resources Defense Council (NRDC)
6/20/05

Sabrina Charney Hull
Westchester County
1/31/06

Steven B. Kaplan
CWCWC
Friends of the Clearwater
3/17/04

John Klotz
CWCWC Attorney
Sierra Club
2/13/04

Dr. Juliana Maantay
Lehman College
6/28/05

Dr. Paul Moskowitz
CWCWC
Huntersville Association
4/4/04

Dr. Paul Mankiewicz
Gaia Institute
1/7/05

Fay Muir
Northwest Bronx Community and Clergy Council
Clean Water for the Bronx
Norwood Community Action
CWCWC
12/4/00

Dr. Michael A. Principe
Deputy Commissioner and Director, Bureau of Water Supply, NYC DEP
9/1/05

Dr. Marian Rose
CWCWC
11/30/01

Oreon Sandler
CWCWC
Federated Conservationists of Westchester County
2/6/04

Paul Sawyer
Director, Friends of Van Cortlandt Park
11/10/04

Lois J. Schiffer
Former Assistant Attorney General, Environment and Natural Resources, US DOJ
6/25/05

Karen Schultz
CWCWC
Sierra Club Lower Hudson Group
12/16/04

John Stouffer
Legislative Director
Sierra Club Atlantic Chapter
12/21/05

James M. Tierney
New York City Watershed Inspector General
Office of the New York State Attorney General
1/7/05

Mark Yaggi
Senior Attorney, Riverkeeper
6/21/05

Anonymous

Appendix III: List of Acronyms and Abbreviations

Alum	Aluminum sulphate
BMP	Best Management Practice
CAC	Community Advisory Council
CEQRA	City Environmental Quality Review Act
CWCWC	Croton Watershed Clean Water Coalition (Croton Coalition)
CWTP	Croton Water Treatment Plant (filtration plant)
DAF	Dissolved air flotation
EDF	Environmental Defense Fund
EIS	Environmental Impact Statement
EOH	East of Hudson (Croton) watershed
FAD	Filtration avoidance determination
HDFC	Housing Development Fund Cooperative Coalition (now, Council)
MOA	New York City Watershed Memorandum of Agreement
NAACP	National Association for the Advancement of Colored People
NIABY	Not in anyone's backyard
NIMBY	Not in my backyard
NRDC	Natural Resources Defense Council
NRWTP	North River Water Treatment Plant
NWBCCC	Northwest Bronx Community and Clergy Council
NYC DEP	New York City Department of Environmental Protection
NYS DEC	New York State Department of Environmental Conservation
NYS DOH	New York State Department of Health
NYC MWFA	New York City Municipal Water Finance Authority
NYPIRG	New York Public Interest Research Group
SDWA	Safe Drinking Water Act
SEQR	State Environmental Quality Review Act
SPDES	State Pollutant Discharge Elimination System

SWTR	Surface Water Treatment Rule
US EPA	United States Environmental Protection Authority
WOH	West of Hudson (Catskill and Delaware) watersheds

Appendix IV: Definitions of Watershed and Filtration

Watershed

The term watershed refers to the land that drains into a watercourse. Watersheds are also called catchments or drainage basins. The boundary between two watersheds is called the divide. This is an area of high land from which water flows in different directions. Every small stream has a watershed, and as a tributary stream joins a larger stream or river, its watershed is joined to the watershed of the larger stream. Thus watersheds are nested within each other. The watershed of the tiniest stream is located within that of a larger stream and then an even larger river. The increasingly smaller units within a watershed are sometimes referred to as sub-watersheds. Any human activity that is defined as being related to a watershed must specify the area under consideration (Allaby, 1998; Griffin, 1999; Pielou, 1998). In this dissertation, I use the definitions established by the New York City Department of Environmental Protection to refer to the New York City watershed and the areas within it. The Department uses the term New York City watershed to describe the entire area from which it collects water to be used to supply New York City. This area is divided between the West of Hudson watershed, which includes the Catskill and Delaware watersheds, and the East of Hudson watershed, which is also called the Croton watershed. It should be noted that these areas, as the Department defines them, do not correspond to the natural watershed of any specific stream or river. Thus, although much of the land included in the New York City watershed drains into the Hudson River, the New York City watershed is not identical with the Hudson River watershed.

Water Filtration

Filtration refers to the process of allowing water to pass through layers of porous material in order to remove suspended particles. This process mimics the way in which water is naturally filtered by seeping through layers of earth. The original filtration plants were constructed to allow water to seep slowly through layers of sand of progressively finer grade. Rapid gravity filtration is faster and takes up less space. Filtration is only one step in water treatment. Water treatment plants may use a number of different processes. These processes include preliminary screening to remove large particles. Smaller particles may be removed with the help of chemicals such as alum (aluminum sulphate) through the coagulation and flocculation process. The chemicals and particles are then removed through coagulation and flocculation. The chemicals are then removed through sedimentation or other means. Water may also be disinfected with chlorine, chlorine dioxide, chloramines or ozone. Although disinfection of water was a major health advance when it was first introduced, concerns have been raised about disinfection because it may result in harmful by-products. Ultraviolet irradiation (UV) and membrane filtration are newer methods of water treatment (Stouffer, 1996). Wastewater and residuals from the treatment process must then be disposed of.

The Croton water treatment (filtration) plant, as proposed by the New York City Department of Environmental Protection, was to employ coagulation and flocculation followed by dissolved air flotation which was to replace sedimentation. These steps would be followed by filtration, disinfection with ultraviolet light, and chlorination. Wastewater from the treatment process would be conveyed to an existing wastewater

treatment plant (New York City, Department of Environmental Protection, Croton Water Treatment Plant Draft Supplemental Environmental Impact Statement, January 12, 2004).

The Croton Coalition, and experts which the Coalition consulted, claimed that the technique of dissolved air flotation was rapidly becoming obsolete. The Coalition researched alternative treatment methods and recommended use of membrane filtration, which would require considerably less space and result in a much smaller footprint for the filtration plant (Croton Watershed Clean Water Coalition, remarks by Michael Cole included in Levine, 2004).

References

Allaby, M. (1998). Oxford Dictionary of Ecology (Second Edition). Oxford and New York: Oxford University Press.

Allen, T.F.H., Tainter, Joseph A. & Hoekstra, Thomas W. (2003). Supply-side Sustainability. USA: Columbia University Press.

Altman, I. & Low, S.M. (Eds.). (1992). Place attachment: A conceptual inquiry (pp. 1-12). In I. Altman & Low, S.M. (Eds.), Place Attachment. New York: Plenum Press.

A Management Plan for the Croton Watershed. (2004, May-June). Our Water, Our Future (21). Bedford NY: Croton Watershed Clean Water Coalition. Available: www.newyorkwater.org

Andrews, K. & Edwards, B. (2005). The organizational structure of local environmentalism. Mobilization: An International Journal 10(2), 213-234.

Argenti, K. (1997, July 21). Affidavit submitted in United States of America and New York State v. City of New York and Croton Watershed Clean Water Coalition, Inc. et al. United States District Court Eastern District of NY. Available: http://www.johnklotz.com/kar_aff.pdf

Ayres, E. (2001, July-August). Airports and cities: Can they coexist? World Watch 14(4), 22-34.

Bakker, K. (1998). Privatizing the Environment: The Political Ecology of Water in England and Wales. PhD Thesis, University of Oxford.

Bakker, K. (1999). The politics of hydropower: developing the Mekong. Political Geography 18, 209-232.

Bath, C. R., Tanski, J. M. & Villareal, R. E. (1998). The failure to provide basic services to the colonias of El Paso County. In D. Camacho (Ed.), Environmental Injustices, Political Struggles: Race, Class and the Environment (pp.125-137). Durham and London: Duke University Press.

Beck, U. (1992). Risk Society: Towards a New Modernity. London: Sage.

Beierle, T. C. & Cayford, J. (2002). Democracy in Practice: Public Participation in Environmental Decisions. Washington DC: Resources for the Future.

Belsky, J. M. (2002). Beyond the natural resource and environmental sociology divide: Insights from a transdisciplinary perspective. Society and Natural Resources 15 , 269-280.

- Bennett, V. (1995). The Politics of Water: Urban Protest, Gender and Power in Monterrey, Mexico. Pittsburgh: University of Pittsburgh Press.
- Blackburn, A. J. (1999, June 6). The real price of filtration: is it worth it? Bedford, NY: Croton Watershed Clean Water Coalition.
- Blaikie, P. and Brookfield, H. (1987). Land Degradation and Society. London: Methuen.
- Brogden, M. J. & Greenberg, J. B. (2005). The fight for the west: A political ecology of land use conflicts in Arizona. In S. Paulson & L. Gezon (Eds.), Political Ecologies Across Spaces, Scales and Social Groups (pp. 41-60). New Brunswick, NJ: Rutgers University Press.
- Brown, P. & Masterson-Allen, S. (1994). The toxic waste movement: A new type of activism. Society and Natural Resources 7, 269-287.
- Bru-Bistuer, J. (1996). Spanish women against industrial waste. In D. Rocheleau, B. Slayter-Thomas & E. Wangari (Eds.), Feminist Political Ecology (pp. 62-85). New York: Routledge.
- Brulle, R. J. (2000). Agency, Democracy and Nature. Cambridge, MA: The MIT Press.
- Bullard, R. (Ed.). (1993). Confronting Environmental Racism: Voices from the Grassroots. Boston: South End Press.
- Bullard, R. & Wright, B. (1992). The quest for environmental equity: Mobilizing the African American community for social change. In R. Dunlap & A. Mertig (Eds.), American Environmentalism: The US Environmental Movement, 1970-1990 (pp. 39-50). Taylor & Francis: New York.
- Burger, M. (2004). A watershed moment: A new urban environmental movement. The Next American City 4 (Competition and Cities). www.americancity.org/print_version.php
- Burningham, K. (2000). Using the Language of NIMBY: A topic for research, not an activity for researchers. Local Environment 5(1), 55-68.
- Cable, S & Cable, C. (1995). Environmental Problems, Grassroots Solutions: The Politics of Grassroots Environmental Conflict. New York: St. Martin's Press.
- Calhoun, Camilla (1997, June). A Town Called Olive: A perspective on New York City's water supply. New York City Watershed Retrospective. Westchester Land Trust. Available: <http://www.westchesterlandtrust.org/watershed/olive.htm>

Camacho, D. E. (1998). The environmental justice movement: A political framework. In D. Camacho (Ed.), Environmental Injustices, Political Struggles: Race, Class and the Environment (pp. 11-29). Durham and London: Duke University Press.

Cantrill, J. & Myers, O. (2003). Place and the promise of conservation psychology. Human Ecology Review 10(2),100-112.

Carmin, J. (1999). Voluntary associations, professional organizations and the environmental movement in the United States. Environmental Politics 8, 101-121.

Carson, R. (1962). Silent Spring. New York: Houghton Mifflin.

Castree, N. (1995). The nature of produced nature: Materiality and knowledge construction in marxism. Antipode 27(1), 12-48.

Catskill Watershed Corporation. Summary Guide to the Terms of the Watershed Agreement. <http://www.cwconline.org/about/moa/moaimpl.htm>

Chawla, L. (1992). Childhood place attachments. In I. Altman & S.M. Low (Eds.), Place Attachment (pp. 63-85). New York: Plenum Press.

Checker, M. (2001). Like Nixon coming to China: Finding common ground in a multi-ethnic coalition for environmental justice. Anthropological Quarterly 74:3, 135-147.

Chichilnisky, G. & Heal, G. (1998, February). Economic returns from the biosphere. Nature 391, 629-630.

Citizens Union Foundation (1987). Water-Watchers: A Citizen's Guide to New York City Water Supply. [The Water Supply Project of the Citizens Union Foundation]. New York: Author.

City of New York (2003). Adopted Budget Fiscal Year 2003, Capital. Available: http://www.nyc.gov/html/omb/pdf/cb6_02.pdf

Claxton, D. (2001, July-August). Diversion or smoke and mirrors? Our Water, Our Future Newsletter 4. Bedford, NY: Croton Watershed Clean Water Coalition. Available www.newyorkwater.org

Cline, S. & Collins, C. (2002). Watershed associations in West Virginia: Their impact on environmental protection. Journal of Environmental Management 67, 373-383.

Corey, M. (1999, April 18-21). Déjà vu all over again: City has disrupted park many times before. Norwood News 12(7).

Cooney, R. (December, 2003). The Precautionary Principle Project: Sustainable Development, Natural Resource Management and Biodiversity Conservation. (IUCN 3-IC Project Situation Analysis). Available: www.pprinciple.net/PrecautionaryPrinciplesissuespaper.pdf

Cooney, R. (2004). The Precautionary Principle in Biodiversity Conservation and Natural Resource Management: An Issues Paper for Policy-makers, Researchers and Practitioners. (IUCN Policy and Global Change Series No.2). IUCN-The World Conservation Union. Available: <http://www.pprinciple.net/publications/PrecautionaryPrincipleissuespaper.pdf>

Cox, K. (1998). Spaces of dependence, spaces of engagement and the politics of scale, or looking for local politics. Political Geography 17, 1-23.

Cronin, J. & Kennedy, R. F. Jr. (1997). The Riverkeepers: Two Activists Fight to Reclaim Our Environment as a Basic Human Right. New York: Touchstone.

Cronon, W. (1991). Nature's Metropolis: Chicago and the Great West. London and New York: WW Norton and Co.

Croton Watershed Clean Water Coalition. (1997, Fall). Troubled Waters, (1).

Croton Watershed Clean Water Coalition. (March-April 2001- January-February 2005). Our Water, Our Future, (2-25). Available www.newyorkwater.org

Croton Watershed Clean Water Coalition (2002, 2004). Action Plan for Protecting the Croton Watershed. Expanded into the Croton Watershed Management Plan (2004). Available: <http://www.newyorkwater.org/managementPlan/CrotonManagementPlan.cfm>

Croton Watershed Clean Water Coalition (2004, October 14). Membrane Water Filtration by Professor Audrey D. Levine. Bedford, NY: Author

Daily, G. (2002). The New Economy of Nature: The Quest to Make Conservation Profitable. Washington DC: Island Press.

Davis, M. (1990). City of Quartz: Excavating the Future of Los Angeles. London: Verso.

DePalma, A. (2004, March 25). Water hazard? Plan to put filtration plant under park angers the Bronx. New York Times, ppB1, B7.

DeSario, J. & Langon, S. (1987). Citizen participation and technocracy. In J. DeSario & S. Langon (Eds.), Citizen Participation in Public Decision Making (pp. 3-17). New York: Greenwood Press.

Di Chiro, G. (1996). Nature as community: The convergence of environment and social justice. In W. Cronon (Ed.), Uncommon Ground: Rethinking the Human Place in Nature (pp. 298-320). New York and London: W. W. Norton & Co.

Di Chiro, G. (1998). Environmental justice from the grassroots: Reflections on history, gender and expertise. In D. Faber (Ed.), The Struggle for Ecological Democracy: Environmental Justice Movements in the United States (pp. 104-136). New York, NY: Guilford Press.

Dowie, M. (1996). Losing Ground: American Environmentalism at the Close of the Twentieth Century. Cambridge, MA: The MIT Press.

Draeger, K. J. (2001). Defining and Evaluating Watershed Organization Effectiveness. (Doctoral dissertation, University of Minnesota, 2001). UMI 3026474.

Dryzek, J. S. (1996). Strategies of ecological democratization. In W. Lafferty & J. Meadowcroft (Eds.), Democracy and the Environment: Problems and Prospects (pp. 108-123). Cheltenham, UK & Brookfield, VT: Edward Elgar.

Dryzek, J. S. (1997). The Politics of the Earth: Environmental Discourses. Oxford University Press: New York.

Duffy, R. J. (2003). The Green Agenda in American Politics: New Strategies for the Twenty-first Century. Lawrence: University Press of Kansas.

Dunlap, R. & Mertig, A. (1992). American Environmentalism: the US Environmental Movement, 1970-1990. Taylor & Francis: New York.

Etheridge, M. (1987). Procedures for citizen involvement in environmental policy: An assessment of the policy effects. In J.. DeSario & S. Langton (Eds.), Citizen Participation in Public Decisionmaking (pp. 116-131). New York: Greenwood Press.

Elkind, S. S. (1998). Bay Cities and Water Politics: The Battle for Resources in Boston and Oakland. Lawrence: University Press of Kansas.

Faber, D. (1998a). The struggle for ecological democracy and environmental justice. In D. Faber (Ed.), The Struggle for Ecological Democracy (pp. 1-59). New York and London: The Guilford Press.

Faber, D. (1998b). The political ecology of American capitalism: New challenges for the environmental justice movement. In Faber, D. (Ed.), The Struggle for Ecological Democracy (pp. 27-59). New York and London: The Guilford Press.

Faber, D. & McCarthy, D. (2001). The evolving structure of the environmental justice movement in the United States: New models for democratic decision-making. Social Justice Research 14(4), 405-421.

Fanizzi, A. (2003, January-February). Putnam County's potential legacy. Our Water, Our Future (13). Bedford, NY: Croton Watershed Clean Water Coalition. Available www.newyorkwater.org

Feller, N. (2002, September-October). When bugs tell people where it hurts. Our Water, Our Future (11). Bedford NY: Croton Watershed Clean Water Coalition. Available: www.newyorkwater.org

Filtration Crossroads (editorial). (2004, February 12-25). Norwood News. Available: www.bronxmall.com/norwoodnews/

Fiorino, D. J. (1995). Making Environmental Policy. Berkeley: University of California.

Fiorino, D. J. (1996). Environmental policy and the participation gap. In (Eds.), W. M. Lafferty & J. Meadowcroft, Democracy and the Environment: Problems and Prospects (pp. 194-212). Cheltenham, UK & Brookfield, VT: Edward Elgar.

Fischer, F. (2000/2003). Citizens, Experts and the Environment: The Politics of Local Knowledge. Durham and London: Duke University Press.

Forward on Filtration. (2003, July 11). The New York Times, p. A16.

Foss-Mollan, K. (2001). Hard Water: Politics and Water Supply in Milwaukee, 1870-1995. West Lafayette, Indiana: Purdue University Press.

Fresco, L.O. (1995). Agroecological knowledge at different scales. In J. Bouman, A. Kuyvenhoven, B. Gouman, J. Luyten, & H.G. Zandstra (Eds.), Eco-Regional Approaches for Sustainable Land Use and Food Production (pp. 133-141). Dordrecht: Kluwer Academic.

Freud, S. (May 23, 2003). Why New York City Needs a Filtered Croton Supply. New York, NY: New York City Department of Environmental Protection.

Freudenberg, N. & Steinsaper, C. (1992). Not in our backyards: The grassroots environmental movement. In R. Dunlap & A. Mertig (Eds.), American Environmentalism: the US Environmental Movement, 1970-1990 (pp. 27-38). Taylor & Francis: New York.

Freudenburg, W. R. & Gramling, R. (1994). Oil in Troubled Waters: Perceptions, Politics, and the Battle Over Offshore Drilling. Albany: State University of New York Press.

Freudenburg, W. & Pastor, S. (1992). NIMBYs and LULUs: Stalking the syndrome. Journal of Social Issues 48:4, 39-61.

Friedman, A. (2000, August 3). Hillary blasts filtration plant. The Riverdale Press.

F. X. Browne, Inc. & Environmental Research and Consulting, Inc. (1998, October 22). Review of the Non Filtration Options Planning and Analysis for the Croton System, Preliminary Conclusions and Recommendations to the Citizens Advisory Committee [excerpt provided by Croton Watershed Clean Water Coalition]. Final report dated January, 1999 is numbered FXB File NY1407-01. Lansdale, PA and Chadds Ford, PA: Author.

Galusha, D. (1999). Liquid Assets: A History of New York City's Water System. Fleischmann's, NY: Purple Mountain Press.

Gandy, M. (2002). Concrete and Clay: Reworking Nature in New York City. Cambridge, MA and London: MIT Press.

Gardner, A. (2005). The new calculus of Bedouin pastoralism in the Kingdom of Saudi Arabia. In S. Paulson & L. Gezon. (Eds.), Political Ecologies Across Spaces, Scales and Social Groups (pp. 76-93). New Brunswick, NJ: Rutgers University Press.

Gee, D. & Stirling, A. (2003). Late lessons and early warnings: Improving science and governance under uncertainty and ignorance. In J. Tickner (Ed.), Precaution, Environmental Science, and Preventive Public Policy (pp. 195-213). Washington DC: Island Press.

Glazer, P. & Glazer, M. (1998). The Environmental Crusaders: Confronting Disaster and Mobilizing Community. University Park, PA: The Pennsylvania State University Press.

Gleick, P. (2002). The soft path for water. In P. Gleick (Ed.), The World's Water 2002-2003 (pp. 1-32). Washington, DC: Island Press.

Gleick, P. (2002). The World's Water 2002-2003. Washington DC: Island Press.

Gleick, P. (2004). The Myth and Reality of Bottled Water. In P. Gleick (Ed.), The World's Water 2004-2005 (pp. 17-43). Washington, DC: Island Press.

Goldman, J. (1997). Building New York's Sewers: Developing Mechanisms of Urban Management. West Lafayette, Indiana: Purdue University Press.

Goldsmith, M. (2002). New York City Water and the Politics of Scale. Unpublished term paper.

Goldsmith, M. (2001). Citizen Opposition to the Croton Water Treatment Plant. Proceedings of the 6th Biennial Conference on Communication and the Environment. Cincinnati: Center for Environmental Communication Studies, University of Cincinnati.

- Gottlieb, R. (1988). A Life Of Its Own: The Politics and Power of Water. San Diego, New York, London: Harcourt Brace Jovanovich.
- Gottlieb, R. (1993). Forcing the Spring: The Transformation of the American Environmental Movement. Washington DC: Island Press.
- Gould, K. A., Schnaiberg, A. & Weinberg, A. S. (1996). Local Environmental Struggles: Citizen Activism in the Treadmill of Production. Cambridge, UK: Cambridge University Press.
- Graham, M. (1999). The Morning After Earth Day: Practical Environmental Politics. Washington DC: The Brookings Institution.
- Greenberg, D. (2000). Reconstructing race and protest: Environmental justice in New York City. Environmental History 5(2), 223-250.
- Griffin, C. B. (1999). Watershed councils: An emerging form of public participation in natural resource management. [Special Issue: Human Dimensions of Watershed Management] Journal of the American Water Resources Association 35(3), 505-518.
- Griffin, C.B. & Gannon, R. (2000, July 9-12). The Growing Popularity of Watershed-Based Organizations. WATERSHED 2000 Management Conference of the Water Environment Federation, Vancouver, British Columbia. (Obtained from author).
- Grossman, L. S. (1998). The Political Ecology of Bananas: Contract farming and agrarian change in the Eastern Caribbean. Chapel Hill and London: University of North Carolina Press.
- Grover, M. (1997, April 17). The DEP let us eat cake. Friends of the Croton Watershed Website. www.townlink.com/community_web/yorktown/watershed/cacyo.htm
- Guber, D. (2003). The Grassroots of a Green Revolution. Cambridge, MA & London: MIT Press.
- Guldbrandsen, T. & Holland, D. (2001). Encounters with the super-citizen: Neoliberalism, environmental activism, and the American Heritage Rivers Initiative. Anthropological Quarterly 74(3), 124-135.
- Harper, B. (1996, August 21). New York City Croton Filtration Plant gets kicked about. North Country News. www.townlink.com/community_web/yorktown/watershed/cacyo.htm
- Harvey, D. (1999). The environment of justice. In F. Fischer & M. Hajer (Eds.), Living with Nature: Environmental Politics as Cultural Discourse (pp. 153-185). New York: Oxford University Press.

Hays, S. (1987). Beauty, Health and Permanence: Environmental Politics in the United States, 1955-1985. Cambridge, UK and New York: Cambridge University Press.

HDFC Coalition (2000, March). Position Paper: Environmental Justice, Housing and Watershed Protection. New York City: Author.

Hecht, S. & Cockburn, A. (1989). The Fate of the Forest. London: Versa.

Henelly, R. (1996, May 28). Drowning in red ink. Village Voice 41(22), pp13-16.

Herod, A. (1997). Labor's spatial praxis and the geography of contract bargaining in the US east coast longshore industry, 1953-89. Political Geography 16, 145-169.

Heyman, J. M. (2005). The political ecology of consumption: Beyond greed and guilt. In S. Paulson & L. Gezon. (Eds.), Political Ecologies Across Spaces, Scales and Social Groups (pp. 113-132). New Brunswick, NJ: Rutgers University Press.

Houser, P. (2003). New York City's Croton Watershed: The Struggle for Protection. Unpublished manuscript, Columbia University.

Howitt, R. (2000). Nests, Webs and Constructs: contested concepts of scale in political geography. In J. Agnew, K. Mitchell and G. Ó Tuathail (Eds.), A Companion to Political Geography, Oxford: Blackwell. Available: <http://www.es.mq.edu.au/~rhowitt/polgeo.htm>

Hundley, N. Jr. (1992/2001). The Great Thirst: Californians and Water. Berkeley: University of California Press (Rev. Ed.). Original work published 1992.

Ingram, H. (1987). Water and Poverty in the Southwest. Tucson: University of Arizona Press.

Jasanoff, S. (2003). A living legacy: The precautionary ideal in American law. In J. Tickner (Ed.), Precaution, Environmental Science, and Preventive Public Policy (pp. 227-240). Washington DC: Island Press.

Johnson, K. (2003, May 23). For first time, conservation groups endorse filtering plant for city water supply. New York Times, pB3.

Johnson, K. & McKinley J. Jr. (2003, July 24). Officials face tough part of water deal, conditions and promises to be worked through. New York Times.

Jordan, A. & O'Riordan, T. (1999). The precautionary principle in contemporary environmental policy and politics. In C. Raffensperger & J. Tickner (Eds.), Protecting Public Health and the Environment (pp. 15-35). Washington DC: Island Press.

- Kaika, M. (1999). Modernity and the Urban Spaces of Produced Nature: The Politics, Culture and Aesthetics of Urbanisation Water in Athens (1834-1999). (Doctoral Dissertation, University of Oxford, 1999).
- Kaika, M. & Swyngedouw, E. (2000). Fetishizing the modern city: The phantasmagoria of urban technological networks. International Journal of Urban and Regional Research 24(1),120-139.
- Kane, K. (2003, June 29-July 2). Croton Watershed Management Strategy: Steps towards the future. Paper presented at the American Water Resources Association International Congress on Watershed Management for Water Supply Systems, New York, NY.
- Kappstatter, B. (2003, July 22). Cash for park may get gov to ok plant. New York Daily News.
- Katz, C. (2004). Growing Up Global: Economic Restructuring and Children's Everyday Lives. Minneapolis: University of Minnesota Press.
- Keil, R. & Desfor, G. (2003). Ecological modernisation in Los Angeles and Toronto. Local Environment 8(1), 27-44.
- Keil, R., Bell, D.V.J., Penz, P. & Fawcett, L. (1998). Political Ecology: Global and Local. London: Routledge.
- Kemmis, D. (1990). Community and the Politics of Place. Norman, OK: University of Oklahoma Press.
- Kempton, W., Boster, J. & Hartley, J. (1995). Environmental Values in American Culture. Cambridge, MA & London: MIT Press.
- Kennedy Jr., R., (1999, February). Cops in Cuffs: The Failure of Environmental Enforcement and Security in the New York City Watershed. Tarrytown, NY: Riverkeeper, Inc.
- Kennedy Jr., R., Sullivan, M. & Postman, M. (1999, November). Watershed for Sale: Explosive Development Threatens New York City's Water Supply. Tarrytown, NY: Riverkeeper, Inc.
- Kennedy Jr., R., Odefey, J., Wegner, W. & Yaggi, Marc (2001, July). Finger in the Dike, Head in the Sand: DEP's Crumbling Water Supply Infrastructure. Tarrytown, NY: Riverkeeper, Inc.
- Kenney, D. S. (1999). Historical and sociopolitical context of the western watersheds movement. Journal of the American Water Resources Association 35(3), 493-503.

- Klotz, J. (2003, July 3). Finding a way through the filtration morass. Riverdale Press.
- Koeppel, G. T. (2000). Water for Gotham: A History. Princeton and Oxford: Princeton University Press.
- Kolbert, E. (1998, July 27). Metro matters: Doing battle on stiff rules for watershed. New York Times, Later Edition Final, Section B, p1.
- Kweit, M. & Kweit, R. (1987). The politics of policy analysis: The role of citizen participation in analytic decisionmaking. In J. DeSario and S. Langton (Eds.), Citizen Participation in Public Decisionmaking. New York: Greenwood Press.
- Lafferty, W. & Meadowcroft, J. (1996). Democracy and the environment: congruence and conflict – preliminary reflections. In W. Lafferty & J. Meadowcroft (Eds.), Democracy and the Environment: Problems and Prospects (pp. 108-123). Cheltenham, UK & Brookfield, VT: Edward Elgar.
- Lake, R. W. (1993). Rethinking NIMBY. Journal of the American Planning Association 59(1), 87-93.
- Landy, M. (1993). Public policy and citizenship. In H. Ingram & S. Smith (Eds.), Public Policy and Democracy. Washington DC: The Brookings Institution. 19-44.
- Landy, M., Susman, M. & Knopman, D. (1999, January). Civic Environmentalism in Action: A Field Guide to Regional and Local Initiatives. Washington DC: Progressive Policy Institute Center for Innovation and the Environment. <http://www.dlcppi.org/>
- Leigland, J. (1995). Public infrastructure and special purpose governments: Who pays and how? In D. Perry (Ed.), Urban Affairs Annual Review 43, 138-168. [Building the Public City: The Politics, Governance and Finance of Public Infrastructure]. Thousand Oaks, CA: Sage Publications.
- Levine, A. (2004, October 14). Membrane Water Filtration. (Report of meeting). Bedford, NY: Croton Watershed Clean Water Coalition.
- Lewicki, C. (2001, February). Supporting community-based watershed efforts. University Council on Water Resources Update 119, 9-13. Available <http://ucowr.siu.edu/updates/119/index.html>
- Logan, J. & Molotch, H. (1987). The City as a Growth Machine. In J. Logan & H. Molotch, Urban Fortunes: The Political Economy of Place (pp. 50-98). Berkeley: The University of California Press. Reprinted in S. Fainstein & S. Campbell (2002). (Eds.), Readings in Urban Theory (2nd ed.). Oxford and Malden, MA: Blackwell.
- Lovins, A. (1977). Soft Energy Paths: Towards a Durable Peace. Cambridge, MA: Friends of the Earth International.

Low, S. & Altman, I. (1992). Place attachment: A conceptual inquiry. In I. Altman & S. Low (Eds.), Place attachment. New York: Plenum. 1-12.

Lubell, M. (2004). Collaborative watershed management: A view from the grassroots. The Policy Studies Journal 32(3), 341-361.

Lubell, M., Schneider, M. Scholz, J.T. & Mete, M. (2002). Watershed partnerships, and the emergence of collective action institutions. American Journal of Political Science 46(1), 48-163.

Mankiewicz, P. & Mankiewicz, J. (1998, Summer). Can we drink the water? Whole Earth.

Martin, D. (1998, December 2). Filtration plant is placed within Van Cortlandt Park. New York Times.

Mas, D.M.L. (2004, August). State of Surface Water Protection: A Summary of Critical Environmental Statutes. Revised Draft Working Paper. Ecological Cities Project. Available: <http://umass.edu/ecologicalcities/watershed/papers/Mas.pdf>

Mazur, A. (1998). A Hazardous Inquiry: The Rashomon Effect at Love Canal. Cambridge, MA and London, England: Harvard University Press.

McCarthy, J. (Ed.) (2005). First world political ecology [special issue]. Environment and Planning A 37(6), 951-1048.

McCarthy, J. (2005). First world political ecology: Directions and challenges [guest editorial]. Environment and Planning A 37(6), 953-958.

McCloskey, M. (1992). Twenty years of change in the environmental movement: An insider's view. In Dunlap, R. & Mertig, A. (Eds.), American Environmentalism: the US Environmental Movement, 1970-1990 (pp. 77-88). Taylor & Francis: New York.

McGuirk, P. M. (1997): Multiscaled interpretations of urban change: the federal, the state, and the local in the Western Area Strategy of Adelaide. Environment and Planning D: Society and Space 15, 481-498.

McGurty, E.M. (2000). Warren County, NC, and the emergence of the environmental justice movement: Unlikely coalitions and shared meanings in local collective action. Society and Natural Resources 13, 373-387.

Melosi, M. (2000). The Sanitary City: Urban Infrastructure in America from Colonial Times to the Present. Baltimore, MD: Johns Hopkins University Press.

- Mertig, A., Dunlap, R. & Morrison, D. (2002). The environmental movement in the United States. In R. Dunlap & W. Michelson (Eds.), Handbook of Environmental Sociology (pp. 448-481). Westport, CT: Greenwood Press.
- Miller, V., Hallstein, M. & Quass, S. (1996). Feminist politics and environmental justice: Women's community activism in West Harlem, New York. In D. Rocheleau, B. Slayter-Thomas & E. Wangari (Eds.), Feminist Political Ecology (pp. 62-85). New York: Routledge.
- Minkler, M. (1997). Building and maintaining effective coalitions. In Minkler, Meredith (Ed.), Community Organizing and Community Building for Health (pp. 259-277). USA: Rutgers University Press.
- Mix, T. & Cable, S. ((2004). How they see us makes a difference: environmental justice activists' social status evaluations and cross-class coalitions. In Society for the Study of Social Problems 54th Annual Meeting, San Francisco.
- Moskowitz, P. (2002a, January-February). Why a little bit of Yorktown is as beautiful today as it was in the 18th century. Our Water, Our Future (18). Bedford, NY: Croton Watershed Clean Water Coalition. Available www.newyorkwater.org
- Moskowitz, P. (2002b, November-December). Developments in the Town of Yorktown – events in 2002. Our Water, Our Future (12). Bedford, NY: Croton Watershed Clean Water Coalition. Available www.newyorkwater.org
- Moss, J. (1998a, August 13-26). City adds filtration site. Norwood News, 11(15). Available: www.bronxmall.com/norwoodnews/
- Moss, J. (1998b, September 24-October 7). Architect unearths rich reservoir history. Norwood News 11(18). Available: www.bronxmall.com/norwoodnews/
- Moss, J. (1998c, December 17-30). Experts: Plant will worsen asthma. The Norwood News, 11(24). Available: www.bronxmall.com/norwoodnews/
- Moss, J. (1999, April 8-21). A filtration primer. Norwood News 12(7). Available: www.bronxmall.com/norwoodnews/
- Moss, J. (2000, February 24-March 8). Silver on filtration in park: I'll defer to Jeff Dinowitz. Norwood News 13(4). Available: www.bronxmall.com/norwoodnews/
- Moss, J. (2003a, March 27-April 9). City targets VC Park again for filter plant, holds powwow at Bronx Democratic Clubhouse. Norwood News 16(7). Available: www.bronxmall.com/norwoodnews/
- Moss, J. (2003b, June 19-July 2). Bewitching hour for filter plant: Dinowitz appeals to colleagues. Norwood News 16(13). Available: www.bronxmall.com/norwoodnews/

Moss, J. (2004, February 12-25). Plant foes united: 'Build it in Eastview.' Norwood News 17(4). Available: www.bronxmall.com/norwoodnews/

Mulvihill, K. (2003, April 17-24). All washed up? As Earth Day nears, the city reviews its liquid assets. Time Out New York, p. 57.

Natural Resources Defense Council (1997, November). Our Children at Risk: The 5 Worst Environmental Threats to Their Health. New York: Author. <http://www.nrdc.org/health/kids/ocar/ocarinx.asp>

Natural Resources Defense Council (2003, June). What's on Tap: Grading Drinking Water in US Cities. New York: Author <http://www.nrdc.org/water/drinking/uscities/contents.asp>

Nelkin, D. (1984). Science, technology and political conflict, analyzing the issues. In Nelkin, D. (Ed.), Controversy: Politics of Technical Decisions (2nd ed.) (pp. 9-24). Beverly Hills, London, New Delhi: Sage Publications.

Nelson, L. S. & Weschler, L. F. (2001). The watershed as a focus for public administration : Conventional and bioregional approaches. Administrative Theory & Praxis 23(1), 10-24.

New York City Department of City Planning. Community District Profile, Bronx CD 7. New York City: Author. Available: <http://www.ci.nyc.ny.us/html/dcp/html/bx7lu.html>.

New York City Department of Environmental Protection (1999, May 20). Final Environmental Impact Statement for the Croton Water Treatment Plant. New York City: Author. <http://www.ci.nyc.ny.us/dep>. <http://www.ci.nyc.ny.us/html/dep/html/news/croteis2.html>

New York City Department of Environmental Protection (2001, February 21). Watershed Agreement Overview. New York City: Author. <http://www.ci.nyc.us/html/dep/html/agreement.html>

New York City Department of Environmental Protection (2002a). New York City 2002 Drinking Water Supply and Quality Report. New York City: Author

New York City Department of Environmental Protection (2002b, January 31). Scope of Work for the Environmental Impact Statement, Croton Water Treatment Plant Project. New York City: Author.

New York City Department of Environmental Protection (2004, January 12). Croton Water Treatment Plant Draft Supplemental Environmental Impact Statement Executive Summary. New York City: Author.

New York City Faulted for use of River Water. (1990, November 13). The New York Times.

New York City Independent Budget Office (2004, May). City's \$17 Billion Water & Sewer Plan – Balancing Risks and Costs. New York City: Author.

New York City Municipal Water Finance Authority (2001, October 11). Water and Sewer Revenue Bonds, Fiscal 2002 Series G Official Statement. New York City: Author.

New York State Department of Health & New York State Department of Environmental Conservation (2002). New York State 5 Year Review of the New York City Watershed Memorandum of Agreement. Available:
www.dos.state.ny.us/lgss/pdfs/nys_moa_review.pdf

O'Brien, M. (1999). Alternatives assessment: Part of operationalizing and institutionalizing the precautionary principle. In C. Raffensperger & J. Tickner (Eds.), Protecting Public Health and the Environment (pp. 207-219). Washington DC: Island Press.

Okun, D.A., Craun, G.F., Edzwald, J.K., Gilbert, J.B. & Rose, J.B. (1997). New York City: To filter or not to filter? Journal of the American Water Works Association 89(3), 62-74.

Paulson, S., Gezon, L. & Watts, M. (2005). Politics, ecologies, genealogies. In Paulson, S., Gezon, L. (Eds.), Political Ecologies Across Spaces, Scales and Social Groups (pp. 17-37). New Brunswick, NJ: Rutgers University Press.

Peet, R. & Watts, M. (1996). Liberation Ecologies. New York: Routledge.

Pepe, R. (1998, March 23). My view: Croton needs a filtration plant. White Plains Reporter Dispatch.

Pfeffer, M., Wagenet, L., Stycos, J. M., Sydenstricker, J. & Meola, C. (2002, February). Value Conflict and Land Use Planning: An example at the rural/urban interface. Draft paper prepared for the Northeast Regional Center for Rural Development Workshop on Land Use Problems.

Pfeffer, M. & Wagenet, L. (2003, June). Social capital, organization and community: New York City and upstate watershed communities. In Proceedings of the American Water Resources Association International Congress, June 29-July 2.

Pielou, E.C. (1998). Fresh Water. Chicago & London: Chicago University Press.

Pires, M. (2004). Watershed protection for a world city: The case of New York. Land Use Policy 21, 161-175.

Postel, S. L. (2005a). Watershed protection: Capturing the benefits of nature's water supply services. Natural Resources Forum 29(2), 98-108.

Postel, S. L. (2005b, July). Liquid Assets: The Critical Need to Safeguard Freshwater Ecosystems. [State of the World Library Worldwatch Paper 170]. Washington DC: Worldwatch Institute. www.worldwatch.org

Proshansky, H.M., Fabian, A.K. & Kaminoff, R. (1983). Place-identity: Physical world socialization of the self. Journal of Environmental Psychology 3, 57-83.

Pulido, L. (1996). Environmentalism and Economic Justice: Two Chicano Struggles in the Southwest. Tucson: University of Arizona Press.

Raffensperger, C. & Montague, P. (2004, March 18). Land Use and Precaution. Rachel's Environment & Health News, (787). Available: <http://www.rachel.org>

Reisner, M. (1986). Cadillac Desert. New York: Viking Penguin Books.

Reisner, M. (1990). Overtapped Oasis: Reform or Revolution for Western Water. Washington DC: Island Press.

Relph, E. (1996). Place. In I. Douglas, R. Huggett & M. Robinson (Eds.), Companion Encyclopedia of Geography (pp. 906-922). New York: Routledge.

Reservoir named to historic registers. (2001, September 27 – October 10). Norwood News. Available: www.bronxmall.com/norwoodnews/

Revkin, A. C. (2002, April 10). Federal study calls spending on water systems perilously inadequate. New York Times, p.A22.

Rhoades, R. E. (2000). The participatory multipurpose watershed project: Nature's salvation or schumacher's nightmare. In R. Lal (Ed.), Integrated Watershed Management in the Global Ecosystem. Boca Raton, FL: Soil and Water Conservation Society, CRC Press.

Rocheleau, D. Slayter-Thomas, B. & Wangari, E. (Eds.). (1996). Feminist Political Ecology. New York: Routledge.

Rodriguez, R. A. (1999) Community Power, Bureaucracy, and Environmental Politics in New York City. (Doctoral Dissertation, University of Wisconsin - Madison, 1999). UMI 9962361.

Rogers, P. (1993/1996). America's Water: Federal Roles and Responsibilities. Cambridge, MA: The MIT Press.

Rome, A. (2001). The Bulldozer in the Countryside: Suburban Sprawl and the Rise of American Environmentalism. Cambridge UK and New York: Cambridge University Press.

Rose Films, Inc. (1999). The Fight for the Croton Watershed: Protection vs. Filtration (video).

Rose, M. (1999, November 29). Statement to the Westchester County Board of Legislators Regarding the Alum Addition Project 9CEQR #99 DEP(31).

Ruhl, J.B. (2000). The (political) science of watershed management in the ecosystem age. Journal of the American Water Resources Association 35(3), 519-526.

Ryan, J. (2002, March 27). Filtration decision: Put it in Van Cortlandt. Riverdale Press.

Sagoff, M. (2002). On the value of natural ecosystems. Politics and the Life Sciences 21(1), 19-26.

Salazar, D. (1996). The mainstream-grassroots divide in the environmental movement: environmental groups in Washington State. Social Science Quarterly 77(3), 626-643.

Sale, K. (1985). Dwellers in the Land: The Bioregional Vision. San Francisco: Sierra Club.

Sandler, (2003, December). The days, months and years go by: why upgrading sewer plants is better than raw sewage diversion. Our Water, Our Future (18). Bedford, NY: Croton Watershed Clean Water Coalition. Available www.newyorkwater.org

Sandweiss, S. (1998). Social construction of environmental justice. In Camacho, D.E. (Ed.), Environmental Injustices, Political Struggles: Race, Class and the Environment (pp. 31-57). Durham and London: Duke University Press.

Schlosberg, D. (1999). Environmental Justice and the New Pluralism: The Challenge of Difference for Environmentalism. New York: Oxford University Press.

Schultz, K. (2002, March-April). Isn't it time the inescapable need for clean drinking water supercede the FAA's unstated agenda? Our Water, Our Future (8). Bedford NY: Croton Watershed Clean Water Coalition. Available: www.newyorkwater.org

Schultz, K. (2003, December). Still buzzing the airport. Our Water, Our Future (18). Bedford NY: Croton Watershed Clean Water Coalition. Available: www.newyorkwater.org

Sexton, K. & Zimmerman, R. (1999). Better environmental decisions. In K. Sexton, A. Marcus, K. W. Easter & T. Burkhardt (Eds.), The Emerging Role of Environmental Justice in Decision Making (pp. 419-443). Washington DC: Island Press.

- Shutkin, W. (2000) The Land That Could Be: Environmentalism and Democracy in the Twenty-First Century. Cambridge, MA and London: MIT Press.
- Silvern, S. E. (1999). Scales of justice: law, American Indian treaty rights and political construction of scale. Political Geography 18, 639-668.
- Sirianni, C. & Friedland, L. (2001). Civic Innovation in America: Community Empowerment, Public Policy, and Movement for Civic Renewal. Berkeley, Los Angeles and London: University of California Press.
- Skolnick, S. (2000, December 22). Airports' poison circles. Earth Island Journal 15(4).
- Smith, L. (2001). The urban political ecology of water in Cape Town. Urban Forum 12(2), 204-225.
- Smith, N. (1992). Geography, difference and politics of scale. In J. Doherty, E. Graham and M. Malek (Eds.), Postmodernism and the Social Sciences. London: Macmillan.
- Smith, N. (1996). The production of nature. In G. Robertson (Ed.), Future Natural: Nature, Science, Culture (pp. 35-54). New York and London: Routledge.
- Smith, Z. (2004). The Environmental Policy Paradox (4th Edition). Upper Saddle River, NJ: Prentice Hall.
- Spirn, A. W. (1984). The Granite Garden: Urban Nature and Human Design. New York: Basic Books.
- Stauffer, J. (1996). Safe to Drink? The Quality of Your Water. Machynlleth, Powys, UK: The Centre for Alternative Technology.
- Stave, K. A. (1998). Water, Land and People: The Social Ecology of Conflict over New York City's Watershed Protection Efforts in the Catskill Mountain Region, NY. PhD Thesis. Yale University. UMI microform 9929752.
- Steinberg, P. E., & Clark, G. E. (1999). Troubled water? acquiescence, conflict and the politics of place in watershed management. Political Geography 18, 477-508.
- Steinberg, T. (2002). Down to Earth: Nature's Role in American History. Oxford UK and New York: Oxford University Press.
- Stirling, A. & Tickner, J. (2004). Implementing precaution: assessment and application tools for health and environmental decision-making. In M. Martuzzi & J. Tickner (Eds.), The Precautionary Principle: Protecting Public Health, the Environment and the Future of our Children (pp. 181-208). World Health Organization. Available from publicationrequests@euro.who.int

Stycos, J. M. & Pfeffer, M. J. (1999). Environmental knowledge and attitudes in the New York City Watershed. In T. Hirschl & T. Hearnton (Eds.), New York State in the 21st Century (pp. 185-200). Westport CT: Praeger.

Swyngedouw, E. (1999). Modernity and hybridity: nature, regeneracionismo, and the production of the Spanish waterscape, 1890-1930. Annals of the Association of American Geographers 89(3), 443-465.

Swyngedouw, E. and Kaika, M. (1997). The environment of the city or...the urbanisation of nature. In G. Bridge & S. Watson (Eds.), Companion to Urban Studies. Blackwell: Oxford.

Swyngedouw, E., Kaika, M. & Castro, J. (2002). Urban water: A political-ecology perspective. Built Environment 28(2), 124-137.

Szasz, A. (1994). EcoPopulism: Toxic Waste and the Movement for Environmental Justice. Minneapolis, MN: University of Minneapolis Press.

Tarr, J. A. (1996). The Search for the Ultimate Sink: Urban Pollution in Historical Perspective. Akron, OH: University of Akron Press.

Tesh, S. N. (2000). Uncertain Hazards: Environmental Activists and Scientific Proof. Ithaca and London: Cornell University Press.

Thomashow, M. (2002). Bringing the Biosphere Home. Cambridge, MA: MIT Press.

Thorne-Miller, B. (2003). Fisheries and the precautionary principle. In (Ed.), J. Tickner (2003). Precaution, Environmental Science, and Preventive Public Policy (pp. 69-85). Washington DC: Island Press.

Tickner, J. (1999). A map toward precautionary decisionmaking. In C. Raffensperger & J. Tickner (Eds.), Protecting Public Health and the Environment (pp. 162-186). Washington DC: Island Press.

Tierney, J. (2000, April 13). Falling Far Behind: Report on the New York City Department of Environmental Protection's Program to Upgrade Waste Water Treatment Plants Within the New York City Watershed. Office of the New York State Attorney General. Available:
http://www.oag.state.ny.us/press/reports/water_treatment/water_html.

Tierney, J. (2003, July 1). Taking Action to Address Polluted Runoff: Environmental Enforcement to Protect our Waters, An Outline for the Citizen Advocate. Notes for speech presented at the International Congress on Watershed Management for Water Supply Systems, July 1, 2003. Similar presentation at League of Women Voters of Westchester Forum, December 9, 2002 is available <http://www.watpa.org/lwv/AG.html>.

Towers, G. (2000). Applying the political geography of scale: grassroots strategies and environmental justice. Professional Geographer 52(1), 23-36.

United States Army Corps of Engineers (2002, May 21). Public Notice: New York Regional Conditions. Available:
http://www.nan.usace.army.mil/business/buslinks/regulat/pnotices/nwp_pn.pdf

United States Federal Register (July 31, 1997). Vol 62:147. p. 41049. Notice of Final Action www.wais.access.gpo.gov

United States National Research Council (2000). Watershed Management for Potable Water Supply. Committee to Review the New York City Watershed Management Strategy, Water Science and Technology Board. National Research Council. Washington, DC: National Academy Press.

Wagenet, L. P., Pfeffer, M.J., Sutphin, H. D. and Stycos, J. M. (1999). Adult education and watershed knowledge in upstate New York. Journal of the American Water Resources Association 35(3), 609-621.

Walsh, A. H. (1990). Public authorities and the shape of decision making. In J. Bellush & D. Netzer (Eds.), Urban Politics New York Style (pp. 188-219). Armonk, NY: M.E. Sharpe.

Wanderstock, H. (1984). Westway. In D. Nelkin (Ed.), Controversy: Politics of Technical Decisions 2nd Edition (pp. 73-87). Beverly Hills, CA: Sage Publications, Inc.

Ward, Christopher O. (2002, October 4). Letter to Michael Kaplowitz, Chairman, Environmental Committee, Westchester County Legislature.

Webler, T. & Renn, O. (1995). A brief primer on participation: philosophy and practice. In O. Renn, T. Webler & P. Wiedemann. (Eds.), Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Discourse (pp. 17-33). Dordrecht: Kluwer Academic Publishers.

Weidner, C. H. (1974). Water for a City: A History of New York City's Problem from the Beginning to the Delaware River System, 1897-1966. New Brunswick, NJ: Rutgers University Press.

Weiser, B. (2004, November 1). Reports offer inside look at city agency's lapses. New York Times.

Westchester County. (March 2, 1995). Westchester County-North County Communities Position Paper on the New York City Watershed Regulations as Amended, March 2, 1995. Westchester County: Author.

White, R. (1994). Urban Environmental Management: Environmental Change and Urban Design. Chichester, England: John Wiley & Sons.

White, R. (1996). "Are you an environmentalist or do you work for a living?" Work and nature. In W. Cronon (Ed.), Uncommon Ground: Rethinking the Human Place in Nature. New York and London: W. W. Norton & Co.

Williams, B. (2001). A river runs through us. American Anthropologist 103(2), 409-431.

Williams, R. W (1999). Environmental injustice in America and its politics of scale. Political Geography 18, 49-73.

Wilson, E. O. (2002, Winter). What is nature worth? Wilson Quarterly 26(1), 23-24.

Woolley, J. & McGinnis, V. (1999). The politics of watershed policymaking. Policy Studies Journal 27(3), 578-594.

Wooley, J., McGinnis, M., & Kellner, J. (2002). The California watershed movement: Science and the politics of place. Natural Resources Journal 42, 133-183.

Worster, D. (1992). Rivers of Empire: Water, Aridity and the Growth of the American West. Oxford and New York: Oxford University Press.

Worth, R. (2000, August 27). The environment: a plan to help the watershed. The New York Times, Section 14WC p5.

Yin, R. (1984). Case Study Research: Design and Methods. Beverly Hills, California: Sage Publications.

Zimmerer, K. S. (1996). Discourses on soil loss in Bolivia: Sustainability and the search for socioenvironmental "middle ground." In R. Peet & M. Watts (Eds.), Liberation Ecologies (pp. 110-124). New York: Routledge.

From: Romalewski, Steven [SRomalewski@gc.cuny.edu]
Sent: Saturday, August 05, 2006 5:04 PM
To: mirele@att.net
Subject: RE: map permission

Hi Mirele,

Thanks for your email. It'd be fine to use OASIS for your map; I'm glad the website can be helpful to you. When you use the map, just provide a credit line for "Open Accessible Space Information System (www.oasisnyc.net)." I'd be happy to talk through some tips on layout options. It's not always easy getting good resolution from a web image, but other publications have used OASIS map images themselves as well as screen shots to good effect.

I'd also be interested in following up from our email introduction earlier this year to talk about ideas on integrating the OASIS project with other CUNY initiatives and research efforts. Feel free to call any time, and I'm around for the rest of the summer if you happen to be at the Graduate Center to chat further -- my wife and I had twins in June, so I won't be taking vacation anytime soon :) .

Cheers,
Steven

=====
Steven Romalewski
CUNY Mapping Service at the Center for Urban Research
The Graduate Center, CUNY
365 Fifth Ave., Room 6202
New York, NY 10016
Phone: 212-817-2033
Fax: 212-817-1575
sromalewski@gc.cuny.edu
=====

From: MarianR451@aol.com
Sent: Sunday, August 20, 2006 5:45 PM
To: mirele@att.net
Subject: Fwd: FW: Your permission to use cartons and comic book?

August 20, 2006
Ms. Mirele B. Goldsmith
174 East 74th Street (14C)
NYC, 10021

Dear Ms. Goldsmith,

You have our permission to include illustrations from the CWCWC newsletter, Our Water Our Future, and from our comic book, Monster of the DEP in your dissertation.

Sincerely,

Marian H. Rose, Ph. D.
President
Croton Watershed Clean Water Coalition

Visit www.newyorkwater.org