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**Connecting with the Grassroots:
The Millers River Watershed Council and
the Massachusetts Watershed Initiative**

by Kate B. Showers¹

Introduction

What is a river? To most people a river is water flowing in a defined channel. However, rivers are simply the most visible component of a complex interacting system of moving and stored water. There are no clear boundaries between a river's channel and the surrounding landscape. Water obviously flows across the land to rivers in tributaries; less obvious is the continuous underground movement of water between a river's bed and the adjacent rock and soil. The area that contributes to river flow is called a watershed. Events occurring in a watershed affect both the quantity and quality of their rivers. Rights have been assumed or assigned in different places over the centuries to flowing rivers and their contents. Watersheds - and their importance in maintaining river function - however, have only been defined relatively recently, but they are coming to be recognized as a natural resource.

Berkes and Feeny (1990) have defined common property as a natural resource whose rights are controlled by an identifiable group. This paper will argue that the fifty year old movement to restore and protect rivers in the Commonwealth of Massachusetts, USA is actually a process of a self-identified community asserting rights over a previously unrecognized resource. It will examine two approaches used to assert these rights: oppositional advocacy and collaboration with the state. The paper will describe the growth of a river protection movement and the establishment of a collaborative relationship with the state. The response of the grassroots Millers River Watershed Council to this collaboration will introduce a discussion of environmental conceptualization and value systems as the context in which collaboration and the recognition of common property rights occur. Data for this paper were collected from library and archival sources, by structured and unstructured interviews, and by participant observation.

Growth of a Watershed Movement

1. Local watershed councils and associations

The Commonwealth of Massachusetts is one of six states constituting the region called New

¹African Studies Center, Boston University, 270 Bay State Road, Boston, MA 02215, USA. E-mail kshowers@bu.edu

England, in the northeast corner of the United States of America. (Note: For historical reasons the state of Massachusetts is officially designated a Commonwealth). Rivers have been, and continue to be, central to life in Massachusetts. Fishing was important in both Native American and subsequent white settler economies. Freshwater fishing continues to be a major past time and concern throughout the state. In the 19th century hydro power ensured industrial development, and in the 20th century abundant fresh water facilitated industrial processes and waste disposal. Despite extensive industrial use of rivers in urban areas, many sections of rivers were relatively undisturbed, home to abundant wildlife and valued for boating, swimming and other recreational activities.

In the middle of the 20th century industrial practices and population growth began to affect river quality in very obvious ways. Citizens responded by forming groups to control use of entire watersheds. Residents along the Housatonic River formed a watershed association in the 1940s to fight the river's degradation. In the 1950s citizens established watershed councils or associations to clean up and defend the Westfield, Connecticut and Framingham rivers. The Nashua and Blackstone River watershed associations were founded in the 1960s, and the Millers River Watershed Council was founded in the 1970s. By the early 1980s most rivers in the state had watershed councils or associations to fight for their restoration and protection; more than one hundred watershed groups had been formed (Himlan 1998; River Network 1998).

The development of these organizations was spontaneous. There was no external stimulation for their formation, and no formal connection among them (Himlan 1998). In each instance citizens organized a group to assert control over the way in which a river and its watershed were being used. Their activities and concerns were determined by the condition of the river they sought to protect. Some groups focused on the restoration of badly damaged rivers while others fought industrial, mill and municipal pollution (River Network 1998).

Massachusetts' long and proud history of revolution, local autonomy and the central role of citizens in their government legitimated the idea that citizens could imagine participation in environmental management. The Commonwealth of Massachusetts claims to be "the birthplace of the Revolution" and celebrates Patriot's Day to commemorate the firing of the first shots of the American Revolution against Britain. As a check against central authority, the state governments of New England were constructed around the concept of local autonomy and "home rule". Many decisions affecting daily lives are still made at public town meetings.

The towns of western Massachusetts have an additional memory of uprising and revolution against the Commonwealth of Massachusetts. The so-called Shay's Rebellion (1786) pitted self-sufficient landholders against merchants and tax collectors from the government based in Boston (Szatmary 1980). The areas in which the first Watershed protection groups formed - and the Millers River Watershed - contain Shaysite descendants.

Towns in the Millers River Watershed, in north central Massachusetts, have more recent memories of contestation with the state government. Private land was expropriated in the early 1930s to create a reservoir for the city of Boston 70 miles to the east. Although the Quabbin

reservoir is technically adjacent to, but not in, the Millers River watershed, its creation - and the government in Boston - is resented to this day by some watershed residents (Greene, J.R. 1989; Greene 1995).

2. The Millers River Watershed Council

a. Formation

The 41 mile long Millers River in north central Massachusetts is the state's fourth largest tributary to the Connecticut River. The main stem starts in Massachusetts' Naukeag Lakes near the town of Ashburnham, while the north branch of the river originates in Lake Monomonac, on the New Hampshire-Massachusetts border near the towns of Rindge, Hew Hampshire and Winchendon, Massachusetts. The 392 square mile watershed encompasses all or part of the land of 23 towns, 17 in Massachusetts and six in New Hampshire (EOEA undated, a). The river flows through five small town centers and the outskirts of one large town. There are no cities in the watershed; most of the land is forest or farmland. Housing pressure has increased in the 1990s.

The Millers River Watershed Council was formed after the "best trout stream in the state" began to have multi-colored flows. Farmers strung barbed wire to keep cows away from their traditional drinking spots, and the fish disappeared. The farmers were frightened, but they did not know the discoloration's source (Young 1987).

In the late 1950s paper mills in the towns of Erving and Baldwinville switched from using virgin white pulp as a primary raw material to using recycled paper. The recycled paper's chemical coatings and colored inks had to be removed in order to make new paper. As there were no wastewater treatment plants at the paper factories, these inks and coatings went directly into the river as waste from the water-intensive paper making process. The volume of chemical discharges increased as paper production expanded, causing the river to flow in different colors (Young 1987).

The situation did not change appreciably after implementation of the 1965 Federal Water Pollution Control Act, providing funds to aid municipalities and industry with the construction of waste water treatment plants. Despite construction of some treatment facilities, standards were lax and pollution continued, especially as industry increased and changed. (Young 1987).

In the late 1960s the Postmaster from the mid-stream town of Athol met with a farmer (and University of Massachusetts Dairy Extension agent) whose family farm was at the confluence of the Millers and Connecticut Rivers to discuss what could be done about the river. They decided to identify at least two people from each of the 17 watershed towns to meet, monitor and lobby for the river (Waidlich, 2000; Young 1987). By 1970 they had formed the Millers River Watershed Council, Inc., a non-profit organization with charitable tax status (Young 1987). Their idea was to meet with industry representatives to discuss and resolve the river's problems.

Industry response ranged from "what do you guys want to do - fish or work?" to "We aren't going to do anything until we have to". Not only were the Council's efforts to establish dialogue and cooperation rebuffed, but its assertion of rights (as farmers, fishermen, bird watchers, boaters, swimmers) to an ecologically viable river were dismissed. Council members realized that collaboration was not possible; cleaning and protecting the river would involve a long political and legal struggle (Young 1987). Part of that struggle would be to have their rights recognized.

b. Activities

The Council's Board of approximately 12 very active members met monthly during the early and mid-1970s. They developed two important legislative allies - one in the US Congress and the other a Representative to the state legislature. Both had known and used the river in their youth and were committed to its restoration. The politicians were from different political parties, but worked together to assert the importance of environmental integrity, the rights of multiple users (fishermen, recreationists) and industry's obligations not to block other uses. In addition the Council received assistance from an official in the state's division of water pollution control (Young 1987). University of Massachusetts graduate students helped to analyze water quality data and located a pro-bono lawyer to prepare a lawsuit against a polluting paper company (Waidlich 2000).

The Council's work was helped by passage of the federal Clean Water Act of 1972 that compelled industry and riverside municipalities to construct wastewater treatment plants (Young 1987). Council members were active in pressuring their municipalities and industry to construct wastewater treatment plants and operate them correctly. The Watershed Council served as a "watchdog agency", monitoring compliance and insisting that the state enforce the law. With implementation, end-of-the-pipe, point-source pollution was reduced (EOEA 1998; Young 1987).

The smell and discoloration of the river decreased markedly, and it was designated a class B river - "a habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation" (Code of Massachusetts Regulations, 1999). In 1983 the Millers River was stocked with fish for the first time in 20 years. Along with the regular sport fish, 20,000 salmon smolt were released as part of the salmon restoration program (Young 1987). The Millers River no longer smelled or looked dirty, but fishing was on a catch-and-release basis only. The fish contained unsafe levels of heavy metals and PCBs, which were being released from old deposits in riverbed sediments.

Legal, political and organizational work did not end with the Clean Water Act and Class B status for the river. The Watershed Council's goals were to meet the standards for fishing and to ensure that the river would never again be degraded. Council members actively sought out and participated in public comment opportunities related to licensing and permitting for river use. Since public comment periods were not well publicized by the state, Council members used their

various contacts to keep the group informed of dates and times.

Attention shifted to non-point source pollution - storm drains, roadway runoff, and toxins immobilized in riverbed sediments - and contaminating land use activities. The Council actively opposed "economic development" proposals that involved the processing of toxic waste and the expansion of landfills in watershed communities.

In 1989 a company specializing in hazardous waste recycling proposed to locate a facility in one of the more economically distressed watershed towns. The company, Recontek, had reached an unpublicized preliminary agreement with town officials when citizens learned of the project. The Committee for Public Health and Safety asked the Millers River Watershed Council for technical help, and demanded a public referendum on the matter. Watershed Council members worked full time collecting information about the proposed facility, contacting other towns where Recontek had operations, and documenting the effects on the environment and communities of hazardous waste reprocessing plants. This information was provided to the public at town meetings, through newspaper articles, and on videos (Reed 1990). The Watershed Council's enormous effort was successful; Recontek's proposal was narrowly defeated in the referendum. But the campaign had sapped members' energy. Active participation by board members waned.

The Council engaged in a protracted battle with the Town of Winchendon over its landfill. Initially, the state had suggested that Winchendon accept construction and demolition materials from Boston for use in capping their landfill. After the first payments for acceptance, municipal officials sought to expand, rather than cap, their landfill with potentially hazardous construction and demolition waste as a revenue source for the town. Some town residents objected because expansion could damage the public's health. The Watershed Council opposed the expansion because it was a threat to the integrity of surrounding wetlands and, ultimately, to the Millers River. Water samples taken by a hydrologist engaged by concerned Winchendon residents provided evidence of a toluene plume extending from the base of the landfill towards the river. To support the resident's efforts, the Council officially requested that the state monitor the plume.

Winchendon citizens kept track of the activities of their town government and the landfill operators, and made reports to the Council. The Council collected data, prepared reports, and put pressure on state officials. The town's expansion permits were eventually denied and the municipality was fined for non-compliance. The Council continues to exert pressure on the state to monitor seepage from beneath the landfill.

Over its 30 years of existence, the Council had become skilled in oppositional work. Board members had learned about different aspects of state government and how to apply pressure, and had acquired a working knowledge of technical issues. The Millers River Watershed Council was recognized by both watershed residents and state officials as an organization that defended the rights of those who wanted to live with a functioning river.

3. Movement Identity

Members of the Massachusetts watershed protection groups came to see themselves as constituting a "watershed movement", and began to formalize interactions among their separate organizations (River Network 1998). They were determined to shift attention from individual components of a river system - water quality, fish, forest management - to the watershed as a functional unit, and to assert their rights over its use.

Since many of the Massachusetts rivers flow through more than one state, Massachusetts groups tried to liaise with like-minded citizens in adjacent states. In the late 1970s regional river activists formed the New England Rivers Center (NERC). NERC organized conferences and provided a networking mechanism for river advocates (River Network 1998).

Upon NERC's demise in 1986, the Millers River Watershed Council and other Massachusetts watershed groups began to work with the Commonwealth's Scenic Rivers Program to coordinate informal networking among themselves (River Network 1998; Waidlich 2000). In 1988 the Riverways Program replaced the Scenic Rivers Program, and created the Massachusetts Water Watch Partnership in 1989 to further support volunteer stream monitoring (River Network 1998). The state focused its attention on channelled river flow while activists maintained their insistence on river function and the need for a watershed concept.

Although members of watershed groups had served on many state and federal advisory committees and had had major roles in some of the early state/federal watershed programs, when they sought to initiate action on their own, the grassroots groups were often thwarted by fragmentation and competition among state agencies (River Network 1998; Himlan 1998). The Departments of Environmental Management, Environmental Protection, Food and Agriculture, Fish and Wildlife, and various conservation services were reluctant to co-operate with each other or share information for fear of losing authority or budget allocations (Himlan 1998). They were incapable of responding to concerns on a watershed scale.

Between 1989 and 1990 river activists from the Millers River and other watersheds held a series of ad hoc meetings resulting in the 1991 formation of the Massachusetts Watershed Coalition (River Network 1998; Waidlich 2000). The purpose of the Coalition was not to protect any particular river, but rather to create a bureaucratic presence capable of asserting the rights of river advocacy groups to be involved in the control of watershed function and use. Constituted of approximately 30 watershed organizations, the Coalition's stated goals were 1) to strengthen the work of its members and allied groups; 2) to raise awareness that rivers are part of a watershed; and 3) to improve policies and decisions affecting water management (Massachusetts Watershed Coalition, undated).

Early NGO-State Partnerships

To begin a dialogue with the state, the Coalition and some of its more active member groups in

the Boston area designed the Watershed Awareness and Policy Initiative (WAPI) (River Network 1998:6). They then approached the Secretary of the Executive Office of Environmental Affairs (EOEA) to discuss their concerns about water management practices in the state, presenting WAPI as part of a proposal "to restore Massachusetts' rivers to fishable and swimmable quality and protect their function by developing public/private partnerships on a watershed basis" (MWC, undated; Himlan 1998; EOEA, 1998)

The Secretary was interested in the Coalition's proposal, and set up a series of meetings for further discussion. The result was the Massachusetts Watershed Initiative. The Initiative was officially launched at a December 1993 forum of watershed and environmental groups, businesses, municipalities and government interests (EOEA 1998). Its purpose was to 'shift from top-down, federal- and state-driven environmental management to bottom-up, locally focused environmental management' (EOEA, 1998). A main component of the Initiative was to be the Executive Office of Environmental Affairs' reorientation of environmental agencies to serve watershed-based decision making (EOEA, 1998). The Initiative created a structure in which the Coalition's goals could be achieved, watersheds had been accepted as the unit at which river management should take place, and watershed groups were recognized as having the right and a responsibility to collaborate in making decisions about watershed use.

The EOEA Secretary facilitated the formation of a Watershed Initiative Steering Committee composed of watershed councils/associations, government agencies, and representatives of the private sector. Beginning in 1994, the Steering Committee met regularly to develop the notion of a partnership among a variety of interests and a rough methodological framework (Himlan 1998). The Neponset River Watershed Pilot Project was begun in a subwatershed of the Boston harbor located just south of Boston in December 1994. Learning from this first application, a rough framework for a watershed initiative was developed by mid-1995 and refined for statewide implementation by the end of 1995/early 1996 (Himlan 1998).

The Massachusetts Watershed Initiative: a structure and a process

The highly successful pilot project resulted in the formulation of a Watershed Management Methodology - which is both a *structure* and a *process*. Features considered to be essential for the Methodology's success are (EOEA 1998):

- * the co-leadership roles of the state, watershed associations or other citizen groups, the business community and municipalities in implementing the watershed approach;
- * bottom-up resource assessment, planning and involvement of all interests;
- * the sub-watershed focus of problem identification and Watershed Action Plan development;

- * the goal of targeted allocation of limited dollars to watershed priorities, according to where the most environmental protection for available funds can be achieved.

The Watershed Management Methodology structure calls for the creation of three new entities - Watershed Teams, Watershed Community Councils, and Stream Teams - while strengthening the institutional capacity of the existing watershed groups, which are referred to as Watershed Associations (even if they call themselves a Council).

Watershed Teams, convened by the Executive Office of Environmental Affairs, include representatives of state and federal environmental agencies, citizen groups and interested individuals. These Teams are responsible for the implementation of watershed management activities and are supposed to be equally accountable to the Secretary of the EOEA and to the community (EOEA 1998).

In contrast to the Watershed Teams, Watershed Community Councils are expected to be convened by a citizen group and represent all of the interests in the watershed - including municipalities, business, landowners, citizen groups, recreational users and representatives of state and federal agencies with programs in the watershed (EOEA 1998). The Watershed Teams and Watershed Community Councils theoretically have the same direction and share the goal of each other's success. Their other tasks and objectives may or may not be the same.

Linking the Watershed Teams and Watershed Community Councils are the citizen-based Watershed Associations and the newly created sub-watershed Stream Teams. Stream Teams are five to ten people from the business community, municipal government structures and interested citizens who work together on a regular basis to assess the quality, identify problems and recommend solutions for the stretch of a stream flowing through their community (EOEA 1998).

This *structure* was created to ensure the *process* of the Watershed Management Methodology. A Five Year/Phase Planning Cycle, in which each year builds on previous years, consists of: Year 1: Outreach and education (of the Watershed Team and the community); Year 2: Research (data collection, including water quality); Year 3: Assessment (interpretation of results); Year 4: Planning and implementation (including permitting, compliance and enforcement) and Year 5: Evaluation. This cycle will be implemented by a series of Annual Work Plans and a Five Year Watershed Action Plan (EOEA 1998).

Both the Annual and Five Year Action plans are written primarily by the state-led Watershed Team. However, to ensure full public participation and contribution, the Watershed Action Plan development and approval process is to 1) be preceded by public notice and personal invitation to all interests for participation; 2) include a public comment period; 3) balance strategic short term and long term actions (for broader consensus from the community); and 4) include a sub-watershed focus (EOEA 1998).

The state wide implementation of the Massachusetts Watershed Initiative began in 1997. For

detailed description of the Watershed Initiative see EOEa (undated, b); for discussion of the cultural and political aspects of retooling a state government toward community-based and integrated environmental decision making, see Jewell et al (1998).

Massachusetts Watershed Initiative and the Millers River Watershed Council

In 1997 the Massachusetts Watershed Initiative was taken to the Millers River watershed. State officials viewed this assignment as a difficult one. The watershed residents were considered to be independent, distrustful of outsiders, and generally uncooperative. In addition, most of the watershed towns are very rural and economically depressed.

The state appointed a female aquatic botanist from an urban area to be the Millers River Basin Team Leader. First the Team Leader convened Basin Team meetings to begin work on the mandated activities for the assigned year of the 5 year planning cycle. Then she approached the Board of the Millers River Watershed Council.

The Millers River Watershed Council was weak and Board participation was low. The Team leader invited Board members to attend the Basin Team meetings and offered to help the Council apply for an Executive Office of Environmental Affairs Capacity Building Grant. The Grant would provide \$50,000 in matching funds over a two year period to hire an Executive Director, expand membership and develop and implement programs and projects.

Board members were reluctant. There was concern that such a grant would change the structure and function of the Council. The Council had always been a voluntary organization whose Board operated by consensus. A paid Executive Director would have a contractual relationship with both the Board and EOEa, creating at once a hierarchical structure within the Council and a potentially divided allegiance. The Executive Director's primary concern would be implementation of the Capacity Building Grant, while the Council was intent on maintaining its advocacy agenda. There was also the possibility that at the end of the two year grant period the carefully built up treasury would have been depleted and the Council would be no stronger.

With reservations, the decision was made to apply for the Capacity Building Grant in the hopes that it might help revive the Council. Since none of the Board members felt qualified or had the time to write the grant proposal, the executive director of another non-profit conservation group was hired to write it. After minimal consultation and hasty review by the Board the proposal was submitted in August 1998.

When the full \$50,000 applied for was awarded to the Council in January 1999, an official from the Executive Office of Environmental Affairs travelled from Boston to reaffirm the Commonwealth's intentions, discuss the proposal, and suggest alterations (Clarkeson 1999). The official stated that Capacity Building Grants had two major purposes: to get money out to the watersheds and to build the capacity of the watershed councils/associations. Matching funds

were used because EOEA did not want to create dependency, but rather to provide start up money so that the Council could begin to implement projects that would lead to self-sufficiency. Only a strengthened Watershed Council could participate in the implementation of the Watershed Initiative's goals of watershed use management being devolved to local organizations working in collaboration with the private sector and the state. The official insisted that these new activities were not intended to reduce or stop the Council's advocacy role, which was valued work (Clarkeson 1999).

The process of hiring an executive director was contentious. The Team Leader's attendance at every Council meeting raised suspicions about surveillance and control. There were differences of opinion about how quickly to implement the search process and whether to hire a known local person or a complete outsider. Pressure was put on Board members to move more quickly than they wanted to. Concern was expressed that the wrong choice could shift the Council away from ordinary community members and attract primarily those with a technical background. For an organization seeking to expand membership in a rural and low-income area, a narrowly focused leadership would not be effective. Discussion was resolved when the only viable candidate was a woman who was a complete stranger - and unfamiliar with the watershed.

The gender balance of the Board meetings shifted with the attendance of the female Team Leader and Executive Director. All of the previous presidents had been male, and most had had very strong ideas about what directions the Council should take. By 1997 the active Board members had dwindled to seven - four males and three females, four of whom were officers. Within months of the Executive Director being hired, the male president resigned and was not replaced. No one wanted the responsibilities of president. The remaining officers were a male (treasurer) and a female (secretary). The other board members who came regularly were two males and one female. The female vice-president began to chair the monthly meetings.

The tone of the Board meetings began to change. It is debatable whether this was due to the end of the tensions associated with the Capacity Building Grant, a shift to having more females in authority roles, or the dominance of non-authoritarian personalities. The Vice-president's approach to running meetings was more inclusive, less authoritarian, and more respectful of feelings that might be the context for decision-making than the former President's had been.

Cooperation began between the state and the Executive Director. The Team Leader helped to identify grant money for which the Council could apply, and the Executive Director wrote several proposals after discussion with the Board. Continual conversation among Board members outside of meetings established a consensus that ensured the Board's interests remained paramount. Some Board members remained unconvinced of the need for an Executive Director.

One activity that appealed to most Board members was the creation of Stream Teams to first assess the river's condition and then devise action plans for restoration or protection of different reaches. The Team Leader invited the state Stream Team trainer to make a presentation, and a Board member found a local resident who would work as a consultant to begin the project as a community education exercise. Implementation of the Stream Team project will be the first

example of the Massachusetts Watershed Initiative's goal - a community based plan coordinated with and supported by state agencies.

The application of the Initiative in the Millers River Watershed is in its earliest stages now. Cautious cooperative links are being made between an extremely independent and very conservation oriented group and state agencies to implement a project that interests them both. It remains to be seen how the state agencies will respond when it does not share the Council's interests, and what kinds of collaborations will be possible when the private sector is involved.

Discussion

1. Collaborative Process

The experiences of Massachusetts watershed groups described in this paper apparently conform to the arguments for NGO-state collaboration presented by Clark (1995) as well as to models discussed by Tandon (1992), Brown and Tandon (1992) and Brown (1994) for successful collaborations and partnerships in Asia and Africa for social and economic development. They argue that a prerequisite to participation in multi-party collaborations is for an NGO to have the size and organizational skills that allow interactions with the other collaborators. Increased size can also help to balance power between small, local groups and state agencies. This "scaling up" in size and power can be achieved through the federation of several smaller groups (Tandon 1992; Tandon and Brown 1992; Clark 1995). Once scaled up, citizen groups can begin the generalized stages of a collaborative process: initiation, start up, problem framing, implementation and expansion (Tandon 1992; Brown and Tandon 1992).

a. Scaling Up and Finding Partners

The Massachusetts river activists understood the need for "scaling up", and tried various local and regional combinations over a ten year period. The Massachusetts Watershed Coalition was created specifically to promote the concept of river function defined by a watershed rather than management of channelled flow, and to seek cooperation with the state government. Coalition members had the requisite knowledge base and organizational skills to approach the state, and became the "catalysts" for collaboration. They also had informal contacts within different state agencies from working with their river programs.

A receptive "climate" existed at the Executive Office of Environmental Affairs. The Coalition's request coincided with the US Federal government's interest in consolidating its activities (such as permitting and planning) within a watershed framework (EOEA 1998). The EOEA Secretary (whose pre-state employment had been with the NGO coalition advocating reclamation of the Boston harbor) believed that citizen groups could - and should - have rights over environmental use and was interested in an holistic watershed approach. The state's long traditions of local autonomy and citizen participation in government normalized the idea of a state-NGO

collaboration.

During their initial discussions, the Coalition and EOEA decided that a successful collaboration would have to involve the business community. The official launch of the Massachusetts Watershed Initiative, therefore, included business representatives. The subsequently created Watershed Initiative Steering Committee also included representatives of the private sector.

b. Sharing a vision and framing a problem

Perhaps the strongest factor favoring a collaborative effort was the shared belief that the structure of the state - as it related to the environment - ought to be changed. The Watershed Coalition had been formed in response to frustrations from trying to relate to separate state agencies. The business community was equally critical of multiple - and often duplicating - agency procedures and regulations. Some state agency officials recognized the ineffectiveness of the existing state structure in protecting the environment.

This bureaucratic critique coincided with several ideological perspectives that called for the reduction of state government. The Coalition wanted to assert the right of local watershed groups and to increase their power over watershed use. Business interests believed that government regulation was detrimental, and that a reduced government would mean reduced regulation. The political power in control of the state was aligned with the business community and had committed itself to reducing the size of government.

It was, therefore, possible to frame an environmental problem as a bureaucratic one: reorganize state resource management in such a way that the number of state agencies was reduced and that more control was given to local citizens and authorities. Once reorganized, specific problems could be locally identified and addressed collaboratively by business, state and local citizens.

Historical experience seems to legitimate this approach to change in Massachusetts, where the Revolutionary War against Britain began. According to Morone (1998), one of the legacies of the American Revolution is the "Democratic Wish". This is a belief that "somehow power can be taken from the state and restored directly to the people" by changing government structures. Morone suggests that the Democratic Wish is a major mechanism for reform in the United States. The Coalition was, therefore, proposing a very American solution to an environmental problem.

c. Implementation and Expansion

The Pilot Project was implemented by NGOs working with state officials as a laboratory to test and refine both the new state agency structure and the way in which it would work. Experience led to modifications before full implementation.

By the time the Massachusetts Watershed Initiative was ready for expansion to the entire state, it had lost its identity as a grassroots project. The Initiative was now state policy implemented by state officials. The Millers River Watershed Council members who had participated in the Massachusetts Watershed Coalition's formation or activities were no longer members, so the Board was unaware of the Initiative's origins. The Council's first experiences with the Basin Team confirmed the Board members' impression that the Initiative was simply another state project.

When the Millers River Watershed Council members had been invited to attend Millers River Basin Team meetings, it was explained that the meetings would be a forum for information exchange, problem identification, and efforts at resolution. Among other things, permits for industrial and municipal discharges into the river were reviewed. The state worked with the notion of acceptable limits of toxic discharge, which involved calculating the amount of water in the river to dilute the toxins and the amount of toxins that could be removed from river water and stored by plants, organic matter and riverbed sediments. The object was to have water that tested at low levels for a range of elements.

Council members questioned the validity of the calculations as well as the very idea of a safe level of toxic additions. They pointed out that the factors used in river flow calculations had not changed in years, despite changes in watershed use and shifts in rain and snowfall patterns. Council members reminded the Basin Team that the river is not safe today for fishing due to releases of PCBs immobilized in river sediments years ago. Council members could not understand the logic of deliberately adding more toxins to the sediment storage system. Having water that tested low for elements did not mean that the river was being protected. Officials on the Basin Team minimized or dismissed the points raised. Council members were shocked when, after expressing alarm about the toluene plume extending from the Winchendon landfill, a state official replied that this was not a problem because all landfills had toluene leachates. The Council's definition of a clean river and how to maintain it were clearly not shared by the state.

d. Power and collaboration

As Tandon and Brown have pointed out, collaboration can only develop when power is somehow balanced between stronger and weaker collaborators. When the Millers River Watershed Council was founded, collaboration with polluting industries was sought. Industry saw no reason to consider the suggestion, as the Council had no power. With the passage of legislation, the Council had tools to use against industry. Increasingly, the Council gained allies in state agencies and in government who could help to ensure enforcement. This kind of informal, often personally based, cooperation with the state resulted in an increase in the Council's power, and industry learned to pay attention. It was the legislative environment which caused the private sector to agree to formal collaboration in the new Massachusetts Watershed Initiative.

The Initiative mandates a collaboration in which participation by watershed groups in

fundamental. However, this collaboration has clearly defined limits. The Council's power in the Initiative is at once substantial and finite. The Council can insist on compliance, and even benefit from fines imposed, and participate in all decision-making discussions. But the management plans to be followed and the regulations for enforcement were written from the assumption that there are safe limits for many activities which ultimately degrade river systems. The Council can only insist on compliance with whatever limits have been established, and it must accept the notion of safe levels of pollution. Legislation, therefore, determines the boundaries in which the Council can act.

This leads to some fundamental questions about using the collaborative process to resolve environmental problems. At what point does collaboration take on the ugly connotation of promoting the interests of an invading army or ideology? Is it possible to frame a problem in such a way that solutions are not determined ideologically? And most fundamentally, is it possible to collaborate with parties who share fundamentally different value systems?

2. Ideological Divergence

Ideological differences about the environment and environmental management do not follow traditional political divisions. Rather, environmental disagreements stem from fundamental perceptions of the significance of time and space, and systems for valuing the natural world. Whether acknowledged or not, most environmental disputes are rooted in these factors. Both capitalists and socialists can be aligned with either side of fundamental environmental divides.

a. Time and space

Environmental problems and their solutions must first be defined in terms of time and space. Problems and solutions predicated on restricted conceptualizations differ vastly from those which set a longer and larger contexts. What might seem practical or reasonable at one scale may be impractical or have negative consequences at another.

When time enters river and watershed management decisions, it is the human rhythms of budgets, grants, and projected future activity that are used. Environmental time scales (biological and physical) do not usually coincide with human constructions of time because environmental systems are a complexity of interactions. Some occur immediately, while others follow a causal chain of events spanning weeks, years or centuries. Still others do not have a predictable frequency. Rivers are, by definition, in motion. There is always a past and a future, yet rivers are often characterized as static entities with fixed and defined qualities that are constant over time. To ensure the appearance of regularity, variable river properties are often described in ranges. The details of fluctuation can be ignored, since the range is always constant.

Similarly, the spatial extent of a river is usually defined in terms of human use of flowing water and what is visible at a particular point. The non-visible portions of a river - underground flow or

downstream reaches - are rarely imagined. Many disputes about river management are underlain by differing spatial conceptions of rivers: river as channelized flow or river as most visible component of a watershed system. Rivers are rarely considered in their entirety, from source to mouth (Derman, per comm). The relation between upstream and downstream problems are often not taken into account, and many calculations of water quality do not address cumulative or interactive possibilities.

Spatial and temporal scales interact, increasing the complexity of river and watershed management. "Solving" a problem of time often means simply transforming it from a temporal to a spatial problem. For example, when the city of Boston began to use water at a rate greater than its watershed could supply, the solution was to dam a distant river and divert its flow. When environmental problems are addressed with a collaborative process, both the identification of a shared vision and the framing of the problem depend upon agreement about scales of time and space.

b. Valuing the environment

Decisions about what scales to use as well as how to define a river, river conservation and acceptable uses of river resources depend upon how the natural world is valued. Lemons and Saboski (1994) suggest that theories of the value of nature can be broadly grouped into three categories:

anthropocentrism - where all value in nonhuman nature is instrumental value and dependent upon contributions to some human values;

inherentism - where all value in nonhuman nature is dependent on human consciousness, but some of this value does not derive from human values;

intrinsicism - where some value in nature is independent of human values and human consciousness.

Anthropocentrism allows the commodification of all aspects of nature, assigning monetary value in terms of utility to human society. Assessment of the worth of natural resources in these systems depends upon a knowledge of their biology and ecology in order to link them to human benefits. Those elements of the natural world which do not have measurable conventional values are considered to be "non-resources" (Lemons and Saboski, 1994). This approach has led to a description of the natural world as an accumulation of separate objects, each with an economic value.

Value systems based upon inherentism or intrinsicism do not express value solely in monetary terms. Instead, they stress other species' rights to existence as well as the importance of inanimate components of the landscape. Systems based upon inherentism and intrinsicism are less dependent upon detailed information about ecosystem components and function because

commodification of every aspect is not required for valuation. In riverine ecosystems concern would be not only for the survival of all species associated with the river, but also for the river's function. Human uses of a river would be assessed in terms of their impacts on other species and on the river's integrity.

Economies based upon anthropocentrism are being challenged. It is pointed out that excessive use of ecosystem components threatens the very systems upon which these economies - as well as all life - depend. Ayres (1993) argued that the alleged dichotomy between protecting natural resources and economic growth was false. Although ecological components are important resources, it is the functions of environmental systems that are the most vital resources. All life depends upon bio-geochemical cycles which are potentially renewable, but can be irreversibly destroyed. These processes include photosynthesis and the water, nitrogen, phosphorus and sulfur cycles. Costanza et al (1997) found a way to value ecosystem function in economic terms. Arguing that the earth is a "very efficient least-cost provider of human life-support systems", the researchers identified 17 categories of "ecosystem services" to which monetary value could be attached (Costanza et al, 1997). The category "lakes/ivers" was valued for water regulation, water supply, waste treatment, food production and recreation providing a "total global flow value" (per hectare services x area of biome) of $1700 \text{ \$yr}^{-1} \times 10^9$ (Costanza et al, 1997). Conservation of "lakes/ivers" would mean ensuring the perpetuation of these "services".

Members of the Millers River Watershed Council reject the anthropocentric value system. The Council represents the value system of a significant portion of the watershed's population. A "wave of newcomers who settled in the 1960s and 1970s - mostly young refugees from suburban New York, New Jersey and southern Massachusetts" was attracted to the region because of its rural and isolated nature (Davis 1999). They constituted 18% of the population of Franklin County, through which the lower portion of the Millers River flows. These immigrants joined with long-time residents who shared their perspective and created a powerful and active constituency for environmental protection.

c. Implications for Environmental Management

Boon (1994) summed up the implications of the different value systems by arguing that conservation is either a "clearly circumscribed activity" or "an attitude that permeates the way society and environment interact". "Conservation as an activity" reduces conservation to one of several competing uses of a river, to be selected only if the benefits of conservation to human society economically outweigh the lack of conservation. Economic and political interests may well see a greater cost in conservation and greater benefit in non-conserving uses than do members of the public. In urban areas, river management decisions are often based on how much a river can be used without affecting its use value (Box and Walker, 1994). One consequence of defining conservation as simply a competing use is that conservation becomes contested and politicized. Another is that river function is ignored.

"Conservation as a way of life" sets human use of natural resources in the context of the long-

term existence and functioning of an ecosystem. With this attitude, human use is moderated by consideration of its impact upon both ecosystem components and function, so that possible long term destruction will modify plans with short-term political or economic gains. This approach also supports notions of common property resources and public space, whose maintenance and use benefit all. Conservation as an activity and conservation as a way of life, therefore, are not synonymous and will not result in the same definitions of problems or solutions.

The constituency of the Millers River Watershed Council actively asserts their right to live with conservation as a way of life. This is based on their non-anthropocentric value system, and is the reason why they choose to live in the watershed, despite its economic difficulties. In Massachusetts much of the business community and many officials in state and federal agencies operate from the anthropocentric perspective that conservation is simply one use for a watershed.

Tandon and Brown - separately and together - have addressed the issue of mutual suspicions and the fear of losing authority through compromise in a collaborative relationship. Much of what might be labelled as "fear" or "suspicion" might actually be a continual examination of ideological underpinnings of the process in order to determine at what point further collaboration would violate a fundamental aspect of a value system. These genuine concerns must be addressed, it would seem, at every step of every partnership. Collaboration is thus understood to be an extremely conscious process.

Conclusion

It can - and perhaps should - be argued that ecological function is a fundamental resource which must be treated as common property. No individual or special interest should have the right to destroy it, and citizens dependent upon this function should dominate decision-making about use that affects it. River function is determined by conditions in its watershed, so river protection can only be carried out on a watershed scale.

In Massachusetts, USA, a thirty year campaign by river activists resulted in government recognition of these concepts. The state agency responsible for the environment accepted a management unit defined by ecological function - a watershed - rather than simply the channelled flow of a river, and agreed to reorganize the state bureaucracy accordingly. The rights of citizen groups to have a major role in decision-making about the use of watersheds was enshrined in the new management structure.

The intention of the new structure was to manage the environment through a collaborative process among state and federal agencies, citizen groups and the private sector. However, collaboration can only be achieved when agreement can be reached on a vision for the future and the definition of the problems preventing its achievement.

Although state agencies will be reorganized, and perhaps slightly easier to contact, the

personalities and the guidelines have not changed, and neither have the underlying philosophies. While the formulation of environmental problems as a bureaucratic one allowed state, business and citizen groups to establish a collaborative structure, it is difficult to imagine how a collaboration about the details of management can come about between very different environmental value systems. The watershed groups simply do not accept the "conservation as another use" perspective espoused by business and the state. Watershed groups will employ the "use" arguments as a tactic, but their goal is conservation as a way of life. For them, the new state collaborative process has not changed the need to struggle over watershed use and river water quality.

Without doubt the earth faces major environmental disruptions, and societies around the world must resolve serious environmental problems. The recognition of environmental function as a finite and fragile resource is crucial. Special interests should not be allowed to destroy it. Environmental problems conform to Tandon (1992)'s requisites for collaborative resolution: they are complex, highly interdependent, impossible to disaggregate and have been proven to be unresolvable by single factor approaches, government intervention (capitalist or socialist) or market forces. Tandon (1992) "cannot imagine a world based on ideas generated fifty or a hundred years ago... as now the fundamental issue is survival... " One can only agree that "fresh thinking, fresh approaches and fresh strategies" are needed. For collaboration to be part of the solution, however, underlying ideologies and value systems must be addressed, power cannot be ignored, and perhaps a fresh vocabulary needs to be employed to reflect a clear break with the ideological constructions that have been used to frame environmental problems and their solutions.

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