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Grassroots-based Watershed Conservation in Central Appalachia

Roughly paralleling the Atlantic coast for 1800 km, Appalachia's peaks and ridges, rising to just over 2000 m, form the axis of eastern North America. Between 1880 and 1920, virtually the entire mountain chain was clear-cut. Severe erosion accompanied the logging. Today's second-growth forests (Figure 1) have matured under the eye of conservation-minded professionals and a sympathetic public determined to prevent a repeat of the first deforestation. Other current environmental issues include forest fragmentation, lack of land use planning, acid mine drainage, acid deposition, and exotic species—all of which degrade the quality of surface waters. Finding solutions for these problems is a constant challenge. In West Virginia, a strategic planning process involving the state's complete political spectrum provided the foundation for launching two programs, one to assess the ecological conditions of the state's watersheds and the other to support the birth and growth of inclusive, consensus-based grassroots watershed groups. A case study illustrates some lessons learned from the second program, focusing specifically on erosion problems.

A watershed approach

Even though the USA's Clean Water Act of 1972 stimulated reductions in point sources of pollution, many streams still do not support their beneficial uses. This led natural resources managers to evaluate the impacts of pollutants carried by water running off the landscape. Recognizing the negative impacts of such nonpoint sources of pollution, mainly from various forestry and agricultural activities, was a conceptual step that catalyzed today's holistic watershed approach to improving water quality.

FIGURE 1 Recovering second-growth deciduous forest along Paint Creek, Kanawha County, West Virginia. (Photo by Gary Berti)

In 1993, the executive branch of West Virginia's state government established the Watershed Conservation and Management Program. The Program's Planning Team relied on voluntary stakeholders from agriculture, business, conservation, forestry, government, mining, and other interest sectors to provide much of the plan's content. In 1994, the agencies published "A Strategic Plan for West Virginia's Watersheds," which included ideas from 89 statewide stakeholder groups. The Planning Team achieved consensus through repeated listening sessions rather than open debate and voting by stakeholders. The plan's strategies emphasize voluntary compliance, economic incentives, and public education. At several intervals in the process, consensus was measured; the plan was finalized when consensus reached 84%.

Ecological assessment and support for grassroots associations

In 1994, two state agencies began to implement two of the plan's strategies. The first strategy is to assess the ecological health of each of the state's 32 watersheds or catchment areas (Figure 2). The goal is to assess each watershed every 5 years, an interval that corresponds to the reissuing of NPDES (National Pollutant Discharge Elimination System) permits. Assessment teams visit as many streams as possible, sampling a number of variables as close to

streams' mouths as allowed by road access. These variables include instream cover for fish, embeddedness, bank condition, riparian vegetation, land uses, sediment, turbidity, pH, conductivity, nutrients, fecal coliform bacteria, and benthic macroinvertebrate communities.

The second strategy is to facilitate the birth and growth of grassroots watershed associations. The first step in this process is to ask stakeholders if they want to form a group. Their strategic planning process (Figure 3) then proceeds through the following steps: vision, deciding how to decide, back to vision, issues, strategies, bite-sized projects, hands-on work. At each step, prioritizing follows brainstorming. There are now about 90 watershed associations in West Virginia; membership varies from 8 to 250, with an average of 35. They are dealing with the following issues: nonpoint sources of pollution (53%), sewage (24%), water quantity (18%), and land management and other issues (6%).

Although every association works on a unique blend of projects, the most common projects include assessment of preexisting information, assembling ecological baselines, water-quality monitoring (Figure 4), school programs, river cleanups, land purchase, stream restoration projects, public outreach, and river festivals. Annual budgets range from $0 to 50,000, with an average of $15–20,000. Surveys of association leaders have shown that they identify some significant barriers to their progress, including lack of manpower and money, inadequate planning of meetings, working across multiple governmental jurisdictions, and focusing on solutions before defining problems. In contrast, low barriers included low levels of knowledge about resources, biases and prejudices, unwillingness to compromise, and lack of trust among members.

Criticisms and lessons learned

This inclusive, conflict-resolving, consensus-based grassroots approach to natural resources management has received some criticisms, including

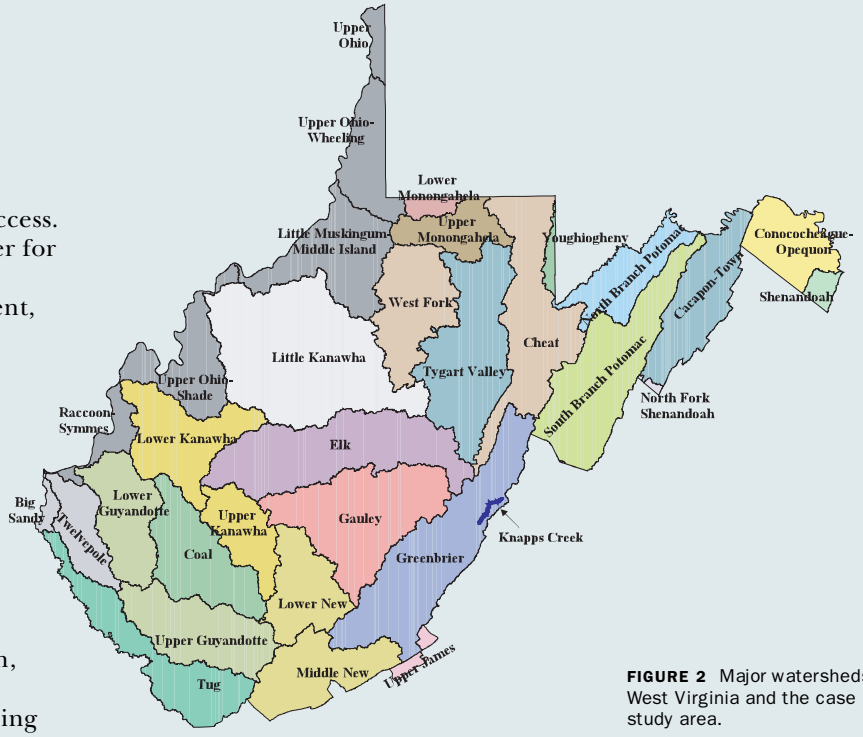

FIGURE 2 Major watersheds of West Virginia and the case study area.

- "It's a sell-out"; that is, consensus is weaker than outcomes from advocacy.
- "It takes too long." Although it is longer initially, up-front investment pays long-term dividends.
- "It doesn't work everywhere," for example, in a polarized community.

From experience in West Virginia, much has been learned about how to work with such grassroots groups. Some of the lessons can be summarized as follows:

- Don't go where you're not invited.
- Strive for inclusiveness.
- Help stakeholders resolve conflicts and build consensus.
- Emergence of one or a few local leaders is probably the most important step in sustainability.
- Emphasize recurring planning over a printed plan.

There is also a need for an infrastructure of support that provides grants, training, resource brokering, facilitation, and coordination among watershed entities. Such an infrastructure has arisen in West Virginia, helping to ensure the long-term sustainability of the region's watershed associations through processes that operate by inclusiveness and consensus. The priority now is to apply these lessons throughout the mid-Atlantic highlands of Central Appalachia.

FIGURE 3 The author facilitating a strategic planning exercise for the Lower Paint Creek Association, West Virginia. (Photo by Marty Prichard)

FIGURE 4 Members of a water-quality monitoring team testing Mill Run, Allegany County, Maryland. (Photo by Gari Berti)

FIGURE 5 Bank erosion along Knapps Creek. (Photo by Gari Berti)

FIGURE 6 Channelizing in the Knapps Creek watershed has been an unsuccessful conventional approach to combating bank erosion. (Photo by Gary Berti)

Case study: A watershed association in Knapps Creek, West Virginia

The problem

People were frustrated. They were losing their land. The occasional large flood would rip out 10 horizontal meters of soil; lesser overflows tore out fences and inundated buildings. Fifteen years of soil losses were limiting landowners' abilities to earn a living—they were threatened with losing their farms. "We want the creek to go back to where it was," said a distressed resident.

People along Knapps Creek, a tributary of the Greenbrier River in east central West Virginia, had obsessed over the problem and sought help from elected officials. Hearing only negative responses, these 25 landowners were running out of hope. Having witnessed the "traditional" solution of dredging the stream bed and straightening the channel on the nearby South Branch of the Potomac River, they wanted it implemented along Knapps Creek, even though they seemed to know intuitively that dredging was only a temporary solution that would require rebuilding after each big flood.

First steps: A new watershed association

Many of the landowners sought help from the District Conservationist (DC) of the US Department of Agriculture's Natural Resources Conservation Service (NRCS). It was he who first suggested they organize as a watershed association. After an initial exploratory meeting in May 1997, the group incorporated as the Knapps Creek Watershed Association. Indeed, one of the reasons the landowners had not been able to get help over the years was that, in order to justify a restoration project, the resource agencies needed an assessment of the stream and its watershed. However, no agency was willing to do the assessment. The landowners were stuck—no assessment, no restoration; but no watershed approach, no assessment.

The DC, in turn, requested help from the Canaan Valley Institute (CVI), a nonprofit organization that helps grassroots watershed groups build scientific and organizational capacities. In July 1997, CVI's staff person attended her first watershed association meeting. One month later, the NRCS's DC and CVI's circuit rider walked a stretch of the stream to get a preliminary impression of the creek's condition. They were overwhelmed by the severity of the bank erosion (Figure 5).

Local leadership and new ideas

Local leadership is one of the most crucial ingredients for the long-term sustainability of a watershed group. The stakeholders urged a man who was already serving as a local leader to accept the leadership role in the new association. This recruit had personally been experiencing erosion problems. Rather than working as a leader who organizes and commands, he immediately envisioned his role as a focal point, expecting the members to participate in all tasks, from leadership to grunt work. He was thus in a position to represent the group's rather than his own views.

The key organization-building question became, "How do you get the members of a group to change their minds?" In November 1997, CVI's circuit rider suggested that channelizing might not be a long-term solution. He suggested inviting a fluvial geomorphologist to visit farms, speak with landowners, and survey the stream, together with association members and NRCS resource staff. After the stream walk, association members agreed unanimously to conduct a watershed assessment. This suggested they were beginning to consider that dredging might not be the best option. In March 1998, the association discussed the costs and benefits of channelizing (Figure 6) vs. the natural stream channel design. Consensus was sought among the members on the natural stream design approach. The group concluded that they did not want a maintenance-heavy false solution.

Going public and planning concrete measures

The watershed group presented the concept at a broad public meeting that included elected officials, farmers, government permitting and funding agencies, and neighbors. The reaction was unanimous support. With the political homework done in May 1998, the fluvial geomorphologist presented a proposal for fixing the stream. It consisted of the following four phases:

- assessment of the condition of the overall watershed and development of restoration and management recommendations,
- designing plans for the grading, erosion control, and plantings of a demonstration project,
- constructing the demonstration project,
- conducting monitoring to evaluate the project's success.

Fundraising for the project was successful, but an unexpected conflict arose over how to use the money. Even though the various proposals specifically identified assessment work, the officials in two traditionally oriented conservation agencies wanted to use the funds for on-the-ground restoration. Here was a serious disconnect. Over several meetings, CVI's circuit rider brokered an agreement to spend the money on the assessment.

Assessment work first

Several administrative steps followed. A contract was signed for the assessment, which is to be concluded in March 2000. Moreover, the many parties involved signed a Memorandum of Understanding (MOU), detailing the responsibilities of each group. Tasks include conducting public meetings to gain support from the public, conducting an annual independent financial audit of all project funds, and seeking and providing funds for planning and implementation. With this MOU, disparate parties gelled into one focused, determined group. This created an attitude of shared credit and the insight that information needed to be communicated. Previous to the MOU, meetings were closed to the public and the project's status was not openly discussed. After these organizational steps were taken, serious funding started flowing into the project.

Take-home lessons

What are the take-home lessons of Knapps Creek for watershed stakeholders?

- *Innovation:* Partners need to look at a stream as an integrated system of uplands, floodplains, riparia, streambanks, benthos, water chemistry, biota, and temporal dynamics.
- *Boldness:* It was new to suggest that the NRCS and Corps of Engineers take what, to them, was an unproven approach.
- *Timeliness:* Since 1985, the creek had been heavily dredged, its channels were unstable, and its banks had to be maintained. People were ripe for a new, more holistic approach from the top to the bottom of the watershed.
- *Relevance:* Each of the stakeholders (e.g., hydrologists, biologists, foresters, farmers) saw that their interests would be better managed.

For CVI's circuit riders, there are also several lessons. Consensus building and an outside facilitator are crucial to making progress. It is necessary to be attentive and flexible, to create high standards, to show respect without condescension, to build trust through credibility, to avoid creating false expectations, and not to impose solutions.

The beginning of this experiment in environmental restoration can tentatively be scored as successful. The members of the Knapps Creek Watershed Association have several decades of work ahead of them. With some organizational and technical resources now in place, the stakeholders can expect increasing successes. In the process, they will teach many other groups and stakeholders how to deal more effectively with difficult problems in a complex social, ecological, economic, and political environment.

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FURTHER READING

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