Clean, Fresh Water: Connecting Costs and Challenges

Tuesday, December 16, 2008



"The health of our waters is the principal measure of how we live on the land." Luna Leopold 1915-2006

The Water Conversation Partners

Chester County 2020 • Chester County Commissioners • Chester County Water Resources Authority Chester County Planning Commission • Delaware Valley Regional Planning Commission Greenspace Alliance



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Clean, Fresh Water: Connecting Costs and Challenges

Community Conversations fill a unique role among Chester County 2020's programs that support effective community cooperation. Each Conversation emphasizes the importance of partnerships. Our partners quite often are the County Commissioners and the County Planning Commission, but may also include municipalities and nonprofit organizations that focus upon land and farmland preservation, affordable homes, transportation, education, the farm community, or any of the other elements that are important to our daily lives. The topic of water welcomed the involvement of the Chester County Commissioners, Chester County Planning Commission, Chester County Water Resources Authority, Delaware Valley Regional Planning Commission, and the Greenspace Alliance as partners. Although the majority of Conversations take place at the municipal level, water is at the very least a county-wide topic, going to the head of the list for its influence on the quality of life.

Water is the amazing resource we take for granted. Turn on the faucet and there it is – with little awareness of how precarious the quantity and quality may be. The program speakers provided a strong dose of water reality, increasing the awareness of the need for good water management and the accompanying challenges and costs — generating productive breakout sessions around the highest priority issues. Each individual contributed attitudes, expertise, and experience, essential tools in addressing the most critical issues.

Setting the Scene

The responsibility for maintaining plentiful supplies of clean water to drink, for growing crops and for recreation lies with a host of government agencies, with the science, non-profit, and business communities, the farmers, county and local governments, and ultimately with the consumer. The scene setters for the Conversation included the three Chester County Commissioners, Carol Aichele, Kathi Cozzone, and Terrence Farrell; Chester County Water Resources Executive Director, Jan Bowers, and Drew Reif, a water-quality biologist for the United States Geological Survey since 1990. Bernard Sweeney, President, Director and Senior Research Scientist of the Stroud Water Research Center, offered a keynote presentation that served as final preparation for the breakout sessions. Together, the



Nancy Mohr, Chester County 2020; Chester County Commissioners: Carol Aichele, Kathi Cozzone, Terrence Farrell

speakers established the historical context as well as supplying water-based facts and figures that emphasize the challenges involved with the preservation of this most critical resource. The challenges are relatively easy to identify. This Conversation represents a significant step in demonstrating that, as county residents and professionals, there is a role for each of us in creating solutions.

The Commissioners

Local, county, state and federal governments join with non-profits, commercial and private landowners to help protect Chester County's natural water resources... contributing directly to sustaining communities while working to reduce the environmental footprint on our watersheds and natural resources.

- In 2002, Chester County Commissioners adopted "*Watersheds*" as the County's water resources management plan, part of *Landscapes* and the first of its kind in Pennsylvania
- Watersheds" is:
 - A description and quantification of the water resources that exist within our 21 watersheds
 - A comprehensive summary of the water quality and quantity issues and problems that face the county
 - A set of goals for each of the 15 largest watersheds to restore and maintain the quality and quantity of our natural water resources
- In the six years since adoption, the goals and strategies of *Watersheds* have been implemented within the County's programs and activities of :
 - The Planning Commission, the departments of Emergency Services, Parks & Recreation, and Open Space Protection, the County Conservation District and Water Resources Authority
- Many accomplishments have been made by municipalities and non-profit organizations within Chester County.
- Since 2002, funding has been awarded from local, county, state and federal grants, and through private and philanthropic funding
 - \$4 million from the Pennsylvania DEC's Growing Greener program
 - \$600,000 from Environmental Protection Agency targeted Watershed Initiatives Grants programs.
 - Individual land owners
 - \$90 million in grant funding from the Chester County Commissioners to municipalities and conservancies for land use planning, ordinances, community revitalization and open space and agricultural land preservation.
- The County Commissioners have undertaken PA Act 167 stormwater management plan projects for several county watersheds.
- For 45 years, the Commissioners have funded flood control and water supply reservoir projects and operations in the Brandywine Creek watershed.

Water Resource Challenges

Much remains to be done.

- Approximately 20 percent 275 miles of the County's 1,310 miles of streams are listed by the Commonwealth as "impaired" polluted to such an extent that they no longer meet their designated environmental uses. They are not fishable swimmable or drinkable.
- Too many miles of County streams could be listed as impaired over the next few years.
- The side effects from the development of our culture and heritage are not comforting:
 - Sediment deposits from clearing woodlands and agricultural practices dating from early settlers choke our stream valleys and have been captured over centuries by historic dams.
 - Western Chester County's ground water exhibits elevated nitrate levels as the result of past agricultural fertilizer practices.

- Flooding and severe stormwater runoff plagues the Boroughs, the City of Coatesville, and other communities with buildings within the flood plains and extensive impervious coverage.
- The need to protect the quality of our natural water resources cannot be overemphasized.
- The commissioners are committed to carrying forward the legacy of the l and and water stewardship ethic of their predecessors who worked to protect the landscape of Chester County. They are determined to do their part to restore watershed quality and minimize the environmental footprint. Consider the following:
 - As the county population approaches 500,000, 40 percent of the residents rely on ground water wells and 60 percent on water from streams and reservoirs.



Jan Bowers, Chester County Water Resources Authority

- Residents and businesses in Chester County use an estimated 45 million gallons of water each day.
- Annually, eco-tourism generates several million dollars mainly through the attraction of the exceptional fishing in county streams.
- Chester County's 21 watersheds provide water to downstream neighbors in eight counties, in three states. Chester County's stewardship protects their water supply. This legacy presents many difficult, very costly challenges.
- A variety of initiatives are underway to improve water quality and reduce stormwater impacts on our streams. They include:
 - Non-profit organizations steward virtually every watershed in the County.
 - Several multi-municipal and multi-state partnerships actively conduct water quality improvement projects.
 - Under the leadership of the Conservation District, the agricultural community is making great strides in implementing pollutant reduction practices.
 - The land development community is responding to the increased demands of stormwater management regulations by building communities with reduced runoff.
 - 58 of the County's 73 municipalities comply with state-mandated municipal stormwater regulations.
- With so much already invested in improving the condition of our natural water resources, many wonder how there can still be so much more to do.
- And yet 275 miles of our streams are classified as impaired.
- We must work together to meet these challenges in the same way that Chester County has accomplished so much in other areas
 - Through creative collaborations
 - Through cooperative partnerships
- The Chester County Commissioners support this event to
 - facilitate those partnerships
 - encourage discussion among all of you and
 - promote the exchange of creative ideas to achieve these difficult challenges with the financial constraints being experienced at all levels
- Carefully consider what role each of us can play... what is reasonable to expect as environmental and economic outcomes... and what strategies will lead to success for funding those outcomes especially given the current economic climate?

Jan Bowers, Executive Director of the Chester County Water Resources Authority (the sole WRA in Pennsylvania), focuses upon water quality every day. Determining what should be done is the easy part; what is more difficult to ask is who should do "it" and how will it be funded? The simple question, "Can



Drew Reif, USGS

we afford clean water?" can be answered with equal simplicity. "How can we *not* afford clean water?"

No one will disagree with the statement that money for water infrastructure is scarce. At the same time, initiatives that contribute most effectively to clean water become increasingly more expensive. Stormwater, waste water discharge, and agricultural land management (Best Management Practices) and urban-suburban retrofits where aging systems are no longer doing the job all magnify the cost picture. There is no single solution; look at Downingtown, doing the job one fix at a time.

Many partnerships have developed to accomplish physical projects. For instance, the Christina Basin Clean Water Partnership (Brandywine, Red and

White Clay watersheds) has a 15 year history, and has pooled together millions of dollars, involving DE/MD/PA/EPA/state and local governments, non-profit organizations, and land owners to install many projects to improve water quality; yet much remains to be done.

Critical Considerations

- Assumption of individual responsibility for land stewardship large and small (really small, i.e., yard)
- Need for continued public outreach & education and pooling resources for effective mass media campaign
- Development of new funding sources for projects. Can't rely on traditional funding.
- Working together economics of scale, partners and models
- Funding strategies for clean water: What would work? What do municipalities need? How much funding is needed?
- Roles of municipalities, non-profit organizations, County and others.
- Balancing the economic and environmental outcomes.
- Where will the cost burden fall?
- Decision-making lies with the municipalities.

Drew Reif is an aquatic ecologist working as a water-quality biologist for the United States Geological Survey since 1990. He is currently project manager for the Stream Conditions of Chester County Biological Monitoring Program and the USGS portion of the PaDEP's Water Quality Network (WQN). Drew reminds us that the meaning of clean water tends to reflect how we value it: drinking water – quantity and quality; fishing and public access (public health); aesthetics; biological integrity; and stream functions. In contrast to taking water's availability and cleanliness for granted, he is in essence a "water detective," evaluating the dozens of situations that contribute to or detract from water quality and guantity. Chemical concerns can be traced back to farm applications, manure, pesticides, herbicides, industrial and wastewater discharges. Urban runoff has its own set of impacts, stormwater carrying pollutants; increasing erosion, sedimentation, habitat degradation; increasing water temperature, and decreasing biological diversity. Add the presence of metals and toxins of all kinds, bacteria, hormones, invasive species, flow alterations and the ability to maintain clean water becomes a crisis. No element of stream quality exists by itself; the nature and quality of the interdependency determines the outcome. Long term monitoring of stream conditions is extremely important to establishing the patterns, to going beyond dealing with short term events in the interest of mitigating poor watershed stewardship. His comments returned again and again to the importance of recognizing and assuming individual responsibility and the need to educate.

Bern Sweeney, the President and Executive Director of the Stroud Water Research Center, concentrates on the ecology of stream invertebrates, the role of streamside forests in the structure and function of streams, the genetic structure and secondary production of aquatic insects, stream pollution assessment, and stream restoration. As the keynoter for the Conversation, Bern shared information that hit home,

making unforgettable connections between everyday lives and the support or destruction of water resources. Perhaps his most telling statement was "Water doesn't lie. It will tell you what is going on." We have to listen and that may be the biggest challenge. An immense amount of information appears in the following list:

- 1 billion people in our world have no access to water.
- 2 billion people have no access to clean water
- It takes 58,000 gallons of water to produce 1 pound of beef. If you fed a steer Deer Park water to produce that same one pound, the beef would cost \$68,208/pound.
- 300 million gallons of water are used to produce a single day's newspapers in the United States.
- USA: 150 gallons per day per person
- Europe: 75 gallons per day per person
- The water in the White Clay Creek, in 2002, never reached the sea. It was all consumed by the time it supplied water for Newark, DE
- We're outgrowing our clean water resources. As (and if) polluted water increases, the shortage will become more serious.
- California streams are supposedly protected. This assumption is not true.
- One third of all U.S. rivers are polluted or impaired in some way.
- A water quality map of the Schuykill watershed has historically shown a predominance of blue dots representing clean water. Today, the red dots outnumber the blue.
- Stroud Center studies the Schuykill watershed (supplying 50% of Philadelphia's water). The areas of the watershed that have been lost to development are huge, with concurrent cost of lost water quality. "Environmental injury is deficit spending."
- Costs accompany the preservation and guarantee of clean fresh water
- Who should be charged for negative impacts on the water supply?
- How to reimburse those who make a good difference?

A single factor that promotes quality water is forest cover. Trees clean water. We're trading trees for human needs. Fewer trees, lower water quality.

- Where there is 60% forest, it costs \$37 to treat one gallon of water.
- Where there is 10% forest, it costs \$115 to treat one gallon of water.
- How about reimbursing landowner for tree buffer?

Samples of easy solutions that make big contributions:

- Persuade the farmers that cows do not belong in the streams.
- Environmentally sensitive development design can help mitigate the negative factors of development.
- Planting wildflowers instead of lawns saves money (and time) and protects the environment.

What can we do? Remember, there are costs to both right and wrong.

- Don't cut costs by ignoring good environmental options.
- Think safety. Would you want your children playing in polluted streams? Drinking contaminated water?
- Consider equitable options and cost distribution.
- At the least, support stream buffers. Costs of buffering will either have to be absorbed by the builder, buyer or community as part of the planning process. Otherwise, there will be much higher mitigation costs downstream.
- Sometimes compromises are unavoidable.
- Push for new clean water legislation.
- Tough to come up with hard and fast rules. What is fair and equitable?



Bern Sweeney, Stroud Water Research Center



Patty Elkis, DVRPC

• Cleaning up U.S. water by 2025 will require \$8.5 billion; \$15 million in Chester County alone.

Bern closed with a basic question: What is our part in improving and maintaining a high quality water supply?

And on to the Conversation

Since virtually everyone struggles with schedules that are full and overflowing, it was rewarding to know that 80 busy people set aside the time and energy to focus on the issues surrounding clean, fresh water. They included municipal officials, representatives of land trusts and other

environmentally focused non-profit organizations, water professionals from several different disciplines, educators, developers, the County Health Department, financial institutions, lawyers, and water companies. The only rules of the game were to approach the Conversation with an open mind; show respect for one another's ideas; be ready to think far out of the box, and to listen and learn. Priorities were assigned to the long list of issues, and solutions for the top five are the products of their efforts. Do remember that Chester County 2020 does not tell anyone what to do, but works to engage the community in creating both visionary and practical responses to challenging problems and opportunities. The solutions are solely the products of the breakout groups.

Water Quality Issues

The list of issues was divided into four sections: Water Quality, Funding For, Practical Considerations, Regulations, and Addressing Citizen Roles. Each player was provided with five dots to express personal priorities, distributing them throughout the list, with one restriction. Placing more than one dot on a single issue was not allowed. Once the dots were counted, the top six became the focus for the breakout period and were randomly assigned.

Top Issues

• Stormwater and pollutant runoff from developed and agricultural lands	36
• "Fixes" for existing stormwater and water quality problems	36
Individual responsibility for land and water stewardship	20
Need to identify practical incentives	18
Municipal regulations	17
Need for effective public outreach & education	17
All Issues	
Water quality	
• Stormwater and pollutant runoff from developed and agricultural lands	36
• Avoiding further water quality "impairments"	16
• Water availability	13
Overland/instream erosion/sedimentation	10
 High levels of nutrients (phosphorus and nitrate) in stream 	9
• Emerging contaminates (pharmaceutical/personal care compounds, hormones, etc.)	5
High levels of bacteria and pathogens	4
• High levels of nutrients (phosphorus and nitrate) in ground water	3
Funding for:	
• "Fixes" for existing stormwater and water quality problems	36
• Municipal compliance with state-mandated MS4 stormwater regulations	11
Mandated municipal wastewater treatment plant upgrades	8

Agricultural BMPs	7
Additional "technical assistance staff resources" to implement projects	2
Practical considerations	
 Need to identify practical incentives 	18
 Promoting brownfield and urban re-development 	14
 Impacts of/to roadway expansions/improvements projects 	6
 How to establish an effective system 	1
 Economics of scale: partners and models 	1
Regulations • Municipal regulations • State regulations - Stormwater - Wastewater	17 14
 Addressing citizen roles Individual responsibility for land and water stewardship Need for effective public outreach & education 	20 17

The complete report from each group appears as an Appendix.

Findings and Observations

- 1. The participants were realistic about the increasing severity of the water issues. They fully subscribed to the urgency of meeting the challenges. Cost was the daunting factor, the classic "elephant in the room." Bern Sweeney's comments about a fair formula sparked interest.
- 2. Clean, fresh water throughout the county is the desired goal, reachable over the long term, but requiring immediate, unavoidably expensive attention to clean-up.
- 3. Watershed preservation and clean-up are the two halves of successful water policy.
- 4. A balanced formula to assess and assign costs of preservation and mitigation rates a high position on everyone's priority list.
- 5. The farming community needs substantial support in addressing water quality issues, in relation to the financial burden and generations-long habits.
- 6. Storm water issues should be addressed at both the watershed and municipal levels.
- 7. Strong consensus exists about the ability to make significant improvements to water quality, but skepticism was expressed about full restoration. References were made to generations, decades, even centuries of poor stewardship that are now difficult to ignore and even more difficult to mitigate.
- 8. Best Management Plans (BMP) are a critical component of any solution.
- 9. Cooperation among the existing watershed organizations represents a desired value.
- 10. New state legislation may be necessary to provide clear authority over water quality issues.
- 11. Repeated support was expressed for a County watershed commission with dedicated funding to

foster strong storm water ordinances establishing uniform regulation enforcement and cooperation.

- 12. Separately, a County Watershed Authority with full enforcement powers was considered necessary to uphold the decisions and recommendations of the watershed commission.
- 13. Each watershed should be represented by a regional watershed commission that works with and reports to the proposed County watershed commission.
- 14. In devising a fair share method for municipalities to support clean water, an important challenge exists in determining what is "fair." A community at the head of a watershed deals with cleaner water than one halfway down; does the headwaters community pay less? Is it realistic for the downstream community to pay more when it is impacted by whatever happens upstream? Are there rewards for good stewardship and increased penalties for damaging neglect and destructive actions?
- 15. Retrofitting old developments will be difficult. How do you motivate individual homeowners to adopt BMPs, plant trees? A community stormwater tax with reduction/credit for implementation?
- 16. Riparian buffers should be planted with the goal of developing into wooded areas, not single lines of trees.
- 17. One buffer size does not fit all. In working with farmers and developers, the terrain near the streams should determine whether an appropriate buffer might be 50', 100' or maybe more or less.
- 18. Developers need to be included in the conversations about clean water initiatives. They need to be part of the solution without always being seen as the bad guys.
- 19. Farmers in particular need financially appealing incentives to adopt good practices.
- 20. Working watershed by watershed can help municipalities develop the political will to enact the plans and fees to complete the appropriate tasks.
- 21. Determination of the sources of pollution is often not easy. Dramatic spills are obvious, but generations of residents, farmers, and industries laid the groundwork for today's problems.
- 22. The map's visual message of blue streams turning red is easy to understand. Returning them to blue should be an appealing goal.
- 23. The investment in clean fresh water needs to be expressed (for some constituencies) in financial terms.
- 24. Families can best understand the costs of remediation and preservation when it is expressed in terms of their children's health and safety. This not only reflects concerns about drinking water, but also about the water activities they enjoy in recreational areas.

CC2020 Observations

- 1. Tension exists between the community goal of wanting local government to be citizen-responsive and the equally fervent desire to avoid financial responsibility for the preservation and mitigation expenses related to clean, fresh water.
- 2. The idea of local and county watershed commissions might well be more effectively served within the already existing Water Resources Authority rather than creating yet another level of bureaucracy.

Watershed associations could be the local working groups, report to and partnering with WRA. Worth consideration?

3. Education about watershed stewardship ranked high in every breakout group. Education is important, not just for school children but for busy adults, too. Individual land stewardship can become a good habit, setting good examples on every small lot as well as larger properties.





Working Group

- 5. Water flows from one area of the watershed to another. Upstream preservation, conservation, and sensible usage have demonstrable effect upon the downstream neighbors and users.
- 6. More than 40 years ago, a brilliant team of planners, lawyers and scientists developed a technical plan specifying all of the scientific data they assembled for the East Branch of the Brandywine. Luna Leopold and Reds (M. Gordon) Wolman were particularly eager to work on this project because it gave them the chance to flesh out their concepts on a real site. Much argument evolved over the 300' set-back: from their perspective it should have been a set-back that would increase in width with each succeeding order of stream. However, such a formula would have been impractical, hard to administer, and hard to explain so they settled on a common 300'.

As lawyer and team member Ann L. Strong recalls, "At our very frequent meetings throughout the basin virtually no one ever complained about this attempt to create a model watershed plan. Our definition of "grassroots" was our most serious misapprehension. We thought that Bob Struble (Sr.), then Director of the Water Resources Authority, and Ken Wood, whom we hired as our field man, were thoroughly grassroots. Not so. They came from southern Chester County, and that didn't wash with their neighbors to the north. Bob and Ken were seen as "county people," not "locals."

In her book, "Private Lands and the Public Benefit," Strong documents the highs and lows of the experience and how recognition of the weaknesses in the approach came too late. The project became victim to sound bites and fragmented understanding. There were comments in this Conversation that hint of attitudes that may not have changed substantially even though the landscape of the County is vastly different. Objectively, approval of the tools to reduce water impairment and preserve watersheds did not seem difficult - until there was a hint of them being used in one's backyard. Then NIMBY effect surfaced. It was interesting that concern about the likelihood of increased taxes never surfaced.

7. Ultimate responsibility for overall water quality lies with the municipalities. Their powers dictate attention to water infrastructure where there is public water available, as well as having responsibility for storm water ordinances and sewage treatment and disposal, the most important components of any plan for clean water. Municipal budgets have never been tighter, and yet most of the bills will land in their mailboxes. Consequently, a fully practical approach to funding good water projects is distressingly elusive.



Working group

- 8. Time is an important factor. Over generations the degradation of the region's water resources has accelerated. The clock can't be reversed, but mitigation is possible. Positive action needs to be on the short-term initiation list.
- 9. It is more practical and effective to be pro-active, to plan ahead. The end product is less expensive, involves less contention.

10.Even visionary, responsible developers generally look upon water protection measures as being an unfair burden. Their not surprising goal is to develop as much of the expensively purchased properties as possible.

Consequently, mention of riparian buffers raises red flags in relation to assignment of responsibility for the costs. The big question, raised by Bern Sweeney, is how cost can be addressed in an equitable manner? Is it a community cost that all watershed residents share to ome degree? Is it folded into the sale price of a home, into the overhead for an entire development? Is it a cost of doing business that is passed on to the buyer, with an easement that prevents the trees from being removed? What incentives are available or can be created to enlist the developers as members of the team rather than being seen as adversaries?

- 11. The leadership role kept returning to the municipal officials who may be open to partnership suggestions, but under current regulations also bear the brunt of potential cost.
- 12. Public-private partnerships are mentioned as an appealing solution to the costs of watershed mitigation and clean water preservation. Successful models are necessary to the formation of a team.
- 13. The importance of watershed stewardship must be emphasized. Upstream usage practices have either positive or negative impacts downstream. Good intentions are not enough.
- 14. Ask the question," Where do you live?" and the answers vary widely: municipality, postal address, nearest town. Ask "what watershed do you live in?" and too often the answer is either a hesitant guess or "I haven't a clue."
- 15. At the same time that we recognize the impacts of serious water shortages and pollution in, for instance, China and Africa, we tend to take the condition of our Chester County watersheds for granted. Just before this report was ready to go to the printer, drought-ridden California announced that on March 1, 2009 irrigation water to the San Joaquin Valley would be shut off for a minimum of two weeks; a longer period will be necessary if there was no rain. This is the heart of the country's produce production and the need to use expensive well water, when available, will translate directly into higher costs in supermarkets everywhere. Almost concurrently, at Keep Farming First, the county's long-running farm summit, Penn State's Dennis Buffington stressed the three most critical issues worldwide: energy (the spotlight topic for this year's KFF), global climate change and water **quantity and quality**. Are we listening?

And questions of the "Can we do ...?" variety

1. Create Improvement Districts for each watershed, using the boundaries that define the watersheds as the ID limits. The Watershed Association for each District could develop a self-tax plan using the master plan and creating a capital program and budget. Tax revenue could be used as a match for any federal, state o county funding. The tax formula could be based on population density, impervious cover, and other factors to be determined by the watershed associations. Important to determine what should be done and establish priorities.

- 2. Work with the County to determine a "fair share" formula for costs. Where there are unfunded mandates, ask for matching funds on the basis of proportion of the county population in each watershed.
- 3. Address the specific program needs for educating the various constituencies: general public, officials, students, business and industry.
- 4. As far as riparian buffers are concerned, look for a workable formula. How about municipalities in the watershed assuming 80% of the cost, while the property owners are responsible for 20%?
- 5. Ask the county commissioners to make compliance with the Stormwater Management Act a high priority.

Over All

The participants in the Water Conversation developed a long list of to-do possibilities that merit prioritizing. Concurrently, multi-municipal cooperation offers the County an opportunity to assess its role in "making things happen." The municipal and, in turn, watershed organizations should address their action plans as relatively short term assignments with common deadlines to keep the process moving. Actions might include the following:

- Purpose/goal
- Assigned responsibility
- Tasks
- Desired outcomes

- Recommended partnerships
 - Potential sources of funding for specific tasks
 - Time frame
 - Recommended action
- Required resources: professional, volunteer, research Progress Assessment and report

The **"Clean, Fresh Water: Connecting Costs and Challenges"** partners contributed to the energy and enthusiasm that the breakout groups applied to the priority issues. The speakers set the scene for discussion by contributing solid, highly useful information from governmental, scientific, and where-water-impacts-your-existence perspectives. The responsibility for guaranteeing clean water lies with everyone, of every age, and not just the government officials and agencies. We must all assume the role of land and water stewards. Will anyone present at the Conversation ever forget that it requires 68,000 gallons of water to get that hamburger onto your plate!

The partners are most appreciative of the interest and commitment brought to this subject. In informal conversation after the last of the reports was delivered, we were certainly tempted to think ambitiously. Can Clean, Fresh Water become the focus of an exciting county-wide effort, similar to Save Open Space in the late 1980s? What better way to continue to grow and preserve Chester County's legacy, its highly valued quality of life. The time to start is now.

aren Wel

Nancy Mohr, President Chester County 2020 for the Partners

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Useful resources for information about water

The Water Conversation Partners

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www.cc2020.org www.chesco.org/water www.ccpc.org www.dvrpc.org www.greenspacealliance.org

Special resource

Tree Tenders Needed

Your trees need you! Join us in learning how to plant and keep alive your neighborhood trees by becoming "Tree Tenders". Tree Tenders is a free training course offered by the Pennsylvania Horticultural Society. Created in 1993, the Tree Tenders project has trained nearly 3,000 community volunteers from 200 Southeast Pennsylvania neighborhoods. Tree Tenders is part of the "growing" TreeVitalize program designed by the Pennsylvania Department of Conservation and Natural Resources (DCNR) to increase Southeast Pennsylvania's tree cover and the benefits that trees offer us all. The 9-hour course covers urban stresses on trees, basic planting, pruning, tree pit care, and tree identification. Groups of three or more from a community who attend all sessions will receive special tree tending tools and benefits. Individuals and groups interested in attending should register by contacting Barbara Van Clief at (215) 988-8793, bvanclief@pennhort.org or at the PHS website, www.pennsylvaniahorticulturalsociety.org

Government and Related Agencies

- PA Department of Environmental Protection
- PA Department of Conservation and Natural Resources
- USDA Natural Resources Conservation Service
- Pennsylvania State University Cooperative Extension

County Links

- Chester County Government Homepage
- Chester County Planning Commission
- Landscapes, Chester County's Comprehensive Plan
- Chester County Conservation District
- Chester County Health Department

Water Data Links

- U.S. Geological Survey (Pennsylvania webpage)
- Pennsylvania Geological Survey

County Watershed Associations

- Brandywine Valley Association
- Chester Ridley Crum Watershed Association
- Darby Creek Valley Association
- Elk Creek Watershed Association
- Green Valleys Association
- Octoraro Watershed Association
- Red Clay Valley Association
- White Clay Watershed Association
- White Clay Creek Management Committee

APPENDIX

The Complete Report Summary

The issues are listed in the priority established by the "dot exercise."

Issue: Stormwater and pollutant run-off from developed and agricultural lands.

Trends

1. Stormwater challenges are not seen as "going away."

Conclusion: Even during the dramatic downturn in residential and commercial construction, the expectation of long-term increases in earth disturbance, and impervious surface run-off demands careful, visionary attention to effective stormwater management.

2. Agricultural pollutants, represented in large part by manure and fertilizer application (and though not named by the breakout group, pesticides and herbicides, too), increasingly require incentives and regulation in line with current technologies.

Conclusion: The solutions have to be considered within the farm economy and the trade-offs that may exist between the use of animal-based fertilizer and oil-based commercial fertilizers that have become too expensive for many farm budgets.

Values

The values expressed in relation to the issue frame the challenges and have a close relationship to the Action Items:

- 1. Improve water quality and ensure appropriate volume of stream water.
- 2. Effective stormwater management for residential/developed area
- 3. Tree planting in riparian and headwaters areas to reduce pollutants
- 4. Balancing short term costs and investments for the future.
- 5. Encourage development in growth landscapes where stormwater can be centralized.
- 6. Discourage development in rural and agricultural landscapes.

Conclusion: Stormwater management should become more stringent on lot by lot basis. The

individual homeowner does share the regional responsibility, and that is a rarely given or heard message.

Preferred future

- 1. Watershed by watershed, the elements of a broad constituency work together to administer uniform policy for the watershed.
- 2. Watershed representatives share information to streamline the planning process and provide the solutions that will apply to identical situations across the county.
- 3. The concept of accommodating growth with as little impact to land as possible attracted strong consensus, reflecting the recommended growth patterns in *Landscapes* and also Landscapes2 (when it is completed and adopted by the Commissioners).
- 4. Urban living is expanded on today's footprint with a set of minimum standards.

Benefits

The potential benefits of fulfilling the priority values include:

- 1. Reduced nutrient and pollutant loads
- 2. Reduced stream volumes
- 3. Improved groundwater recharge
- 4. Watershed cooperation
- 5. Pooled resources in solving problems
- 6. Uniform regulations

Barriers

Challenges were recognized:

- 1. Ability to reduce nutrient and pollutant loads
- 2. Effective control of stream volumes
- 3. Effective groundwater recharge
- 4. Watershed cooperation
- 5. Willingness to pool resources to solve problems
- 6. Development of uniform regulations
- 7. The major financial challenge is the ability to access funds to encourage installation of stormwater management measures and tree planting.

Important players

- 1. As in the other breakout groups, the list of major players in making good things happen began with the County Commissioners.
- 2. Support from municipal officials as participants in watershed commissions was a close second.
- 3. As far as the agricultural community was concerned, there was agreement that every type of farming activity with potential impacts upon clean water goals had to be considered - with farmers (including the Amish) being recruited by their already committed peers to be part of the overall team.

Working together

- 1. Partnerships were valued as critical tools for success, including better connections between landowners and others who could use remediation projects and those willing to do it.
- 2. Public/private partnerships represent an appealing financial tool that can also present logistical challenges.

Unresolved issues

- 1. The major unresolved issue, appearing repeatedly throughout the Conversation in nearly every group was funding.
- 2. The need to tap into sufficient funding to encourage installation of stormwater management measures and tree planting was emphasized.
- 3. It was easier to identify empty pockets (especially in the case of municipalities) rather than deep ones.
- 4. The desire for redevelopment that reduces the expansion of stormwater problems and how it should be managed and by whom.5. Re agriculture, should the current standards
- be applied, or should there be an effort to develop a new set of standards that is sensitive to site, crop/activity and location within the watershed?

Additional input from the worksheets

Group #1: Think about a user fee or tax based on water quality in a watershed. A watershed commission has to have political decision-makers involved.

Group # 9: TDRs can play a role. Exciting to think about implementing storm water regulations on a lot by lot basis! Think about Bern's challenge re assigning costs in the course of building/selling new houses.

Issue: Funding Fixes for Existing Stormwater and Water Quality **Problems**

Trends

1. Too few people realize that water quality and quantity problems do not respect municipal boundaries, nor are they aware of the importance both governmental and individual watershed stewardship.

Values

- 1. Education ranks high among the priority values, and that can play out as inclusion in the school curriculum and public relations efforts to educate the general public.
- 2. A system of taxes/fees and incentives with full participation an important value.

Barriers

A major barrier to developing a funding stream for clean water is the pervasive attitude that individuals don't believe in their personal responsibility to contribute to clean water maintenance. Other barriers may include:

- 1. Water is too often viewed as an entitlement.
- 2. If residents of any watershed are going to be asked to contribute to the water quality they have taken for granted, they have to gain total understanding of the water issues.
- 3. Creation of fair, equitable and responsible methods for funding clean water may not be considered a major, worthwhile challenge.
- 4. Need for public education
- 5. Perception of higher community priorities than stormwater/water quality problems

Important Players There is a role for virtually everyone in preserving clean fresh water:

- 1. Elected municipal officials
- 2. Land owners (all, from single homes to farms)
- 3. Watershed associations
- 4. Land trusts

- 5. Local educators and school districts.
- 6. Mass marketing/education is extremely important
- 7. State government has to assume a role, too.

Working together

- 1. Establish multi-municipal or regional stormwater authorities.
- 2. Support for the idea of a municipal-level administration or regional authority administering a program similar to "Save Open Space" with a similar fully professional media marketing campaign.
- 3. Hold on-going discussions with municipalities, citizens, state elected officials, developers and other business interests.

Action items

- 1. Float a \$400 million bond issue backed by legislative initiatives to enable a stormwater authority.
- 2. As the economic stimulus package is launched, be ready with identified ready-togo projects that can benefit from a dedicated funding stream of fees/incentives and a mechanism to apply the funds.

Additional input from the worksheets

Group #3

Affixing "payment" share

Public – marketing problem re tax Private—incentives—who's responsible? Best solution is tax penalty for "bad behavior"

Non-point sources are the biggest problem. The biggest challenge is figuring out the best solution.

Absence of political will to enact necessary fees Raising funds in a fair and equitable way is very challenging.

It is difficult to communicate the urgency of the problem. If left to reach a crisis state, it will be too late to remediate.

And in more detail: Public education

Information for landowners on what to do re good environmental stewardship How to change our culture; incentives to cause people to change what they do for better water stewardship.

How to understand "causality" of local impacts

- Bacteria levels in well water/need for UV
- Septic cleanout practices
- How to make education effective
- Tell the truth effectively to adults and kids. How to create incentives to get people to care about being better water stewards

Stormwater is the big issue. Fix stormwater problems and you'll fix a lot of the water quality problems.

How to pay for the "fix" and allocate the cost.

- ¹/₄ cent for stormwater fixes (like open space fee) ¹/₄ of 1% of earned income tax on or property tax.
- How would this compete against other tax increases?
- Marketing/education problem

Stormwater authority/utility where pricing is based on related condition – for instance, impervious coverage fee on property. Site characteristic tax or fee

• Credits for woodland

Incentives/credits for doing good BMPs – but is it fair to others to pay for htose incentives? Is there an approach comparable to recycling?

\$2/trash bag encourages recycling.

Promote good actions or penalize bad actions.

Everyone contributes to stormwater problems, some more than others.

Is there a workable combination of fee/tax for bad and incentives for good?

Alternative compliance strategy

Incentive for good/bad built into tax/fee as a credit to reduce the fee for doing something to improve?

Issue: Individual responsibility for land and water stewardship Trends

10S

1. The most pervasive trend has been little or no

attention to the importance of clean water. Some people very aware; others (average person) not concerned.

Conclusion: Without awareness, there will be no action, leading to degradation of the watershed environment and subsequently, water quality.

Positive trends

1. Improved cooperative interaction with neighboring states and improving environmental education of children and business leaders.

2. Chester County's improved and increased available stormwater management options.

Negative trend

1. The long-time trend that must be changed is the absence of multi-municipal cooperation, as well as the impacts of the power of politics and challenges of aging infrastructure.

Values

- 1. People must learn to recognize water quantity and quality as a priority for its critical role in supporting life. Unfortunately, too often a crisis is necessary for water to rate a high priority; without crisis, people don't pay attention.
- 2. The most important value: everybody should be involved.

Preferred future

This group was very specific in its recommendations for a better water future:

- 1. Runoff from development needs be retained on-site.
- 2. Re-use stormwater for gray water purposes, for water elements (ponds, fountains) in landscaping plans.
- 3. Water issues incorporated into every school's curriculum. People can be helped to make better decisions through education; children are great carriers of information to their parents.
- 4. Community clean-up brings people together for a common good, keep kids out of trouble, provides opportunities to improve the community environment.
- 5. Raise awareness through education and communication that produces improved

individual, local, state and national regulation and action. Self-interest is not always bad.

Benefits

- 1. Additions to school curriculum are recognized as opportunities to instill the concept of good change in families, improve values and a sense of responsibility about water.
- 2. The message was that each individual should act as a watershed steward.

Barriers

- 1. Skepticism was expressed about the ability to overcome bureaucratic intransigence and avoid distractions from other issues that seem more urgent, but really aren't.
- 2. Competing interests that siphon off time and money.
- 3. Dealing with unmotivated individuals.

Important players

- 1. Education system, both public and private
- 2. Community action organizations , civic associations
- 3. Individuals: parents leading children, children influencing parents
- 4. Scout troops
- 5. Watershed associations: existing and newly organized
- 6. Religious organizations
- 7. Everyone who benefits from clean water and that means an all inclusive everyone

Action items

- 1. Educate everyone from school children to adults. Solutions can include TV commercials, education, community programs, kid-focus, national focus, state focus, active Environment Action Committees.
- 2. Spread knowledge about the connections between what we do on the land and how it affects the water and the every-growing need for clean water.
- 3. Enlist everyone in agreement about the importance of clean water.

Unresolved issues

1. How to deal with too much separation of school from community

2. Elusive consensus about the importance of better connections between community needs and school curriculum.

Additional input from the worksheets

Group #4: A step by step program over a period of time. Set goals. Prospects very good if a sense of community responsibility can be developed. A critical challenge - indifference. Attitude that it's someone else's problem.

Group # 8: Small groups of watershed monitors. Establish EACs in each township

Issue: Need to identify practical solutions/incentives

Positive trends

- 1. LEED certifications becoming more appealing
- 2. Use of water-saving appliances
- 3. Education system responding to environmental threats
- 4. Community action, civic associations taking on quality of life issues, such as water
- 5. Individuals, parents, children developing more interest in these issues

Negative trends

- 1. Increased population growth
- 2. Conflicting environmental regulations

Values

Values were equally specific.

- Recapture the blue quality of the streams that have "gone red." Not a political statement, but instead a matter of looking at the maps. The number of red (impaired streams) is growing too quickly and often designates tributaries of the highly valued, still blue streams that are endangered.
- 2. Recognize the health benefits that accompany clean water.

Preferred future

A concise summary of the preferred future:

- 1. County residents using less water
- 2. Infiltrating water on their property
- 3. Using environmentally friendly products at home.
- 4. These can be the products of better

community education through support from counties and municipalities.

Barriers

And over all, the path to the preferred future is strewn with potholes:

- 1. Cost
- 2. Resistance to change
- 3. Changing habits and attitudes that go in the wrong direction
- 4. Conflicting regulations; regulation beyond the funding cability of municipalities
- 5. Politics and power

Important players

Virtually the entire county community is represented:

- 1. An informed DEP
- 2. Municipal "regions" that translate into multi-municipal cooperation
- 3. Education system
- 4. Community action and civic associations
- 5. Individuals, parents, children
- 6. Individual homeowners
- 7. Municipal officials willing to enact ordinances that support clean water

Working Together

As the important players come together in various combinations, the first steps are to create better connections between public/private entities for exchange of knowledge/ideas. Addressing problems effectively requires better education and communication.

Unresolved Issues

A long list of unresolved issues creates a long agenda dependent upon better understanding and cooperation:

- 1. Resistance to change
- 2. Tax incentives on pesticides and fertilizers
- 3. Reduced water rate for lower consumption.
- 4. Tax credits for homeowners who adopt Best Management Practices
- 5. Stormwater rain gardens, green roofs, reduced lawn (size and inputs)
- 6. Free compost bins in return for discontinuing garbage disposal
- 7. Tax discount for green building
- 8. Tax incentives for purchase of water-saving devices.

Additional input from the worksheets

Issue: Need to identify practical solutions/incentives

Group # 2

- Residents can be persuaded to take pride in helping the environment, and can be alerted to concern about water quality.
- Everyone must become involved in change.
- People are lazy and don't want to spend the extra dollars.
- Any action has to have demonstrable return on the investment.

Group # 5

- Those who degrade the water quality most should pay the larger share of cleanup costs.
- Incentives to purchase composters
- Taxes on fertilizers
- Surcharge for not installing buffer
- Tax credits for rain barrels, infiltration gardens, porous pavement, green roof

Issue: Municipal Regulation Changes

Municipal officials are themselves residents and taxpayers, but with the important difference of being responsible for the safety, health and welfare of the municipality. Bound by the rules of the Municipalities Planning Code, budgets that in recent years have grown at the same time that revenues have decreased and, most recently, a national economy that does not bode well for their financial picture, what they may want to achieve is not always what they can afford to achieve.

Trends

- 1. Increasing awareness of wastewater and stormwater management problems, including attention to stormwater impacts
- 2. Zoning challenges
- 3. Programs for Phase II
- 4. Zoning changes that can be positive and negative in terms of improvement and protection of water quality

Values

The municipal officials' values involving water tend to concentrate on service goals:

- 1. Improving water quality for everyone.
- 2. Managing water quality and quantity.

Preferred Future

The goals around water management may be simple but not necessarily easy to accomplish:

- 1. Incentives in place for homeowners to accomplish conservation
- 2. Incentives for developers to be environmentally responsible and recognize the potential for municipal cooperation

Barriers

Clearing the barriers to progress requires vision, tenacity, diplomacy, and courage.

- 1. Existing developments should they be retrofitted?
- 2. Cost and where is the funding?
- 3. Not In My Back Yard (NIMBY) attitude about almost anything
- 4. Who bears the responsibility to pay for past mistakes?

Important Players

The municipal officials' perception of the key players is more limited than those of any of the other issues discussed. The players seen to have the most impact on water strategies are County and State agencies as well as local land trusts addressing issues in the individual watersheds. A teamwork attitude is necessary to develop new levels of cooperation among municipalities and the County. Allied goals include:

- 1. More effective stormwater and wastewater systems
- 2. More effective overall stormwater management
- 3. Reuse of stormwater
- 4. Encouragement of forested buffers rather than a simple line of trees
- 5. Best management practices and the education that makes them an "easy sell"
- 6. Science based regulations
- 7. Creation of a stormwater authority
- 8. Address challenges watershed by watershed.
- 9. More effective communication
- 10. Incentives (for the municipalities, for the residents and businesses)
- 11. Act 167 plans

Unresolved Issues

Two questions evaded resolution:

1. Should responsibility for mistakes be a

township issue or a homeowners association issue?

2. How can we work better with DEP, local actors and developers?

Additional input from the worksheets

Group # 7: Require townships to adopt a model, state of the art ordinance that requires reuse or recharge. Improved waste water management along with stormwater management are keys to success. No way currently to punish municipalities that don't comply. Change state law.

Issue: Need for effective public outreach and education Trends

Basic trends emphasize the importance of outreach and education:

- 1. Population growth and the need to educate and prepare young people to be stewards of their planet, especially around the water issues
- 2. Changing demographics
- 3. Increased watershed education reflecting water crises in this country and abroad
- 4. "Last Child in the Woods" children plugged in to their computers and video games, lacking connection with nature

Values

Concern about children and health is the focal point of this group's discussion, looking toward a preferred future where every citizen is owner of the importance of water quality and takes personal responsibility for improvement and preservation. The potential benefits include:

- 1. All steams fishable, swimmable, and economically treatable
- 2. Ground water is maintained at sustainable levels for consumption.
- 3. People are trained to do outreach

Barriers

- 1. Over-committed teachers without time to pursue a complete water-based curriculum
- 2. Independent cowboy culture
- 3. Unwillingness to pay for water quality and quantity

Important Players

- 1. County, municipal and school district officials
- 2. Good public relations firm
- 3. Schools
- 4. Watershed organizations
- 5. Environmental organizations
- 6. High profile individuals

Working Together

- 1. Public-private partnerships
- 2. County and township: reach the public, disseminate information
- 3. Non-profits: develop the message, education, training
- 4. Business: funding, publicity, volunteers
- 5. Schools: develop curriculum and integrate into other subjects

6. Foundations: funding and direct involvement *With cautionary advice:*

- Don't merely sing to the choir
- Go where the people and organization are.
- Increase communication skills
- Involve capable individuals at the personal level

Additional input from the worksheets

Group # 6: Identify the stakeholder groups. Complex solutions not easily addressed by individuals. Consistency in message. Making water quality a burning issue.