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LOCAL IMPLEMENTATION AND THE DECISION PROCESS – A CHALLENGE

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1. Introduction—the problem of implementing environmental programs at the local level

Most of us have heard the saying: “think globally, and implement locally.” The implementation of every federal and state environmental program hinges primarily on local efforts. Implementation decisions are made by a myriad of local entities including, but not limited to governments, metropolitan planning organizations, businesses, nonprofits, and citizen’s groups. Coordination amongst these groups varies and at best is a challenge. Further complicating the situation is the tangle of rules, regulations, commissions, and cultures involved. Lack of resources (intellectual, monetary, and analytical tools) poses arguably the largest obstacle.

2. One measure of the resource problem - Unfunded Environmental Mandates

An incredibly difficult set of issues for local governments is unfunded mandates. These are requirements mandated by state and federal governments (either by law or regulation) that have to be met, but for which no funding has been provided. Many of these, but certainly not all, arise from environmental legislation (e.g., the Clean Air Act), or are the result of regulations to implement legislation (e.g., the Environmental Protection Agency (EPA) 8 hour standard for maximum ozone levels).

For example, EPA sets the standards for ambient air quality, the VA Department of Environmental Quality (VDEQ) oversees the implementation and conformity with these standards (and may add more), and local jurisdictions become responsible for developing reduction programs when standards are violated.

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Although the resource problem is multi-dimensional, we present only the monetary challenge here, as it is the most straightforward to quantify. Twenty-one counties (of some 5,000) across the US were able to provide specific costs incurred by their county for implementation of the Clean Air Act to the National Association of Counties (see Surveys on the NACo web page at <http://www.naco.org/>).

Five counties in Virginia reported:

County	2003 Expenses	2004 Expenses	Population	Cost/Capita In 2004
Glouster, VA	\$29,571	\$14,568	36,698	\$0.39
Henrico, VA	\$9,500	\$9,500	271,085	\$0.35
Fairfax, VA	\$13,747,767	\$14,435,155	1,000,405	\$14.42
Pulaski, VA	-----	\$46,259	35,030	\$1.32

Fairfax County is a suburb of Washington, D.C. with high-density commuter and local traffic. The other four counties are rural, or relatively so.

While these may seem like relatively small per capita costs (1) they are only first level estimates, and (2) there are a total of 10 sets of unfunded mandates listed in the NACo survey that have to be funded annually from county revenues. So what does this tell us? Air quality programs can be expensive to local governments and the primary funds come from the local tax base.¹ To maximize the return on the taxpayer investment, local governments must coordinate activities as a minimum; better yet, find ways to pool resources.

3. Examples of challenges met in the Shenandoah Valley through coordination and cooperation

¹ For additional issues of concern to local governments, see the Web Pages for the National Association of Counties at <http://www.naco.org/>, and the National Association of Regional Councils at <http://www.narc.org/>.

a. Early Action Compact: For the Winchester-Frederick County area, the Economic Development Commission (EDC) was given the responsibility to coordinate the development of the Early Action Compact (EAC) with the VDEQ and EPA when the city and county were declared in non-compliance with the EPA 8-hour standard for ozone. The compact stipulates ways in which the city and county will come back into compliance by December 31, 2007.

The process began in the fall of 2002, with the establishment of the Air Improvement Task Force under the EDC, and culminated in December 2004 with the signing of the EAC by EPA, VDEQ, Winchester, and Frederick County. The EAC identified Tier 1 and Tier 2 measures to improve the air quality. These ranged from a public education campaign, to open burning restrictions, to engine idle reduction measures. In substantial measure returning to compliance at the local level relies on federal (and some state) measures such as NOx trading programs, reformulated gasoline, and changes to motor vehicle engine performance. By contrast, local efforts rely heavily on public education and behavioral change. One action adopted by Winchester-Frederick County was to develop and implement an education and outreach program called Valley AirNow. The two jurisdictions funded Valley AirNow in CY 2005 at \$75,000.

b. Regional Councils and Commissions: These provide an excellent partner for the implementation of region-wide state and federal environmental programs. Such councils and commissions normally coordinate environmental programs in their areas; they have access to local governments, businesses and citizen's groups; and they provide a vehicle for setting county and state legislative agendas. The local regional council or commission can facilitate the implementation of national environmental programs. (We discuss a specific example later in the paper.)

c. Universities: Universities have the intellectual and analytical capacities to not only address basic programs of air quality, but they also have the capacity to leverage resources from other parts of the university to make substantial contributions to the air quality activities. In addition, they have the capability to both join other higher education institutions in cooperative programs and to seek funding from a variety of sources, federal, state and private. Biodiesel is an excellent example of the role that universities can play.

d. Biodiesel in the Valley and the roles of Cities, private industry, and universities: The successful proliferation of biodiesel use and production in Virginia's Shenandoah Valley can be attributed to a handful of separate entities communicating and coordinating. This is a university, private industry, and City initiative. Biodiesel use began with student experiments at James Madison University's Fuels Diversification Program (JMU FDP) in 2001. JMU was interested in biodiesel because of its potential to be made from local non-petroleum resources and its potential to reduce particulate matter (PM) emissions. Shortly after JMU experiments were initiated, Holtzman Oil began distributing imported B2 (2% biodiesel, 98% normal diesel).

In 2003, the Director of the JMU FDP founded Blue Ridge Clean Fuel (BRCF), a precursor to a Department of Energy Clean Cities Program. Biodiesel Implementation Committee (BIC) meetings organized by BRCF brought together biodiesel interests in the Valley including JMU administrators, Holtzman Oil executives, biodiesel users, farmers, fleet managers, and City participants. These meetings have grown into a quarterly series of statewide workshops supported by the Virginia.

In early 2003, JMU FDP initiated a pilot project to run three recycling trucks on B20. The project included educating City Transit officials, middle school children, and the general public about the JMU biodiesel experiment. For Earth Day 2004, the JMU Administration adopted biodiesel for their entire diesel fleet. Shortly after, the City Transit Director began planning adoption of biodiesel in Harrisonburg City's fleet. At the urging of biodiesel industry interests, the City of Harrisonburg worked with JMU FDP and BRCF on a statewide biofuels forum, which was held in November of 2004. The willingness and diligence of individuals from BRCF, Hampton Roads Clean Cities, the JMU Integrated Science and Technology program, JMU Facilities Management, the City of Harrisonburg's City Council, and the City of Harrisonburg's Public Transit Department, has fostered the spread of biofuels in the Valley at an exceptional level. JMU and the City of Harrisonburg were recognized for their program during president Bush's energy speech in May 2005 in Virginia. The City of Charlottesville and Virginia Tech University are now embracing biodiesel.

4. SHENAIR: meeting challenges in the Shenandoah Valley.

During the period when the EAC for Winchester and Frederick County was being developed (2002-2004), other ozone gages in

and around the Valley also were in non-compliance – Shenandoah National Park, Roanoke, and the Eastern Panhandle of West Virginia. The Shenandoah Valley Air Quality Initiative (SHENAIR) was developed as a regional approach to what was clearly a regional problem.

SHENAIR is focused on measurement, regional modeling, and the development of tools for the decision maker. We in the program have developed a strategic and tactical alliance with the Northern Shenandoah Valley Regional Commission (NSVRC) that is proving to be essential to the implementation of the air quality initiatives in the Valley. The NSVRC adopted the SHENAIR air quality program as one of its major environmental activities along with an effort to manage the water resources of the region. For its part, James Madison University established the SHENAIR Institute to conduct and manage the science program.

Initial funding for SHENAIR has been provided through a grant from the National Oceanic and Atmospheric Administration (NOAA) to the NSVRC. Congressman Frank Wolf was an early supporter of SHENAIR and was instrumental in securing funds in the National Weather Service budget for FY 2005.

The SHENAIR Local Government Committee under the NSVRC has established the science program goals and objectives. This means that the local governments most concerned with the air quality issues in the Valley set the agenda and make the policy decisions for SHENAIR.

The LGC has adopted a series of long-term goals for SHENAIR. These are:

- (1) Sustainability: Ensure that the air quality is kept in some balance with the health of the citizens, animals, crops, wildlife and economic needs of Valley enterprises.
- (2) Natural System Preservation: Protect and maintain the natural systems that are integral to supporting the air quality including the forests and urban ecosystems.
- (3) Planning and Regional Cooperation: Achieve a broad regional consensus on the direction of air resources policy, and planning and management.
- (4) Education and Stewardship: Have well-informed citizens, business people, and elected officials who

are actively involved with promoting air resources stewardship.

Once the broad policies have been established, the science program is prepared by a science task team and conducted through the SHENAIR Institute. In turn, the SHENAIR Institute has formed a “virtual” institute of collaborating centers of higher education. For example, Virginia Tech is actively engaged with computer modeling, the Lord Fairfax Community College is doing outreach, and the State Climatologist at the University of Virginia is participating with data assessment.

The science objectives for the FY 2005 budget are:

- (1) Develop a relational database of information on air quality and meteorology in the Valley.
- (2) Begin the process of testing transport models to determine their applicability and deficiencies in data and/or model physics.
- (3) Begin the process of validating source inventories with emphasis on mobile sources.
- (4) Enhance the air quality and meteorological observing network in the Valley.
- (5) Initiate studies leading to a better understanding of the economic and health impacts of poor air quality.
- (6) Begin developing the education and outreach program, with an emphasis on developing the regional requirements for information

A stakeholder task team has been organized under the LGC. This team is seeking a broad representation of people from government, business, health professionals, and the general public to provide input to defining the air quality issues as well as deciding on effective solutions.

5. Is this a strategy for a better mousetrap?

In each of the examples, including SHENAIR, a non-profit is an intermediary or surrogate to interpret national programs in local contexts: NSVRC, Economic Development Commission, SHENAIR Institute, JMU. The non-profit (a) provides leadership and sets priorities, (b) serves to coordinate all of the groups involved, (c) understands, interprets, and assures

compliance with rules, regulations, commissions, and cultures involved, (d) defines a specific vision and keeps everyone on track, (e) educates the public and perhaps most importantly **brings science to the decision process**. The two keys here are “local level” and “science in the decision process.” Neither can be ignored if any environmental program is to be effective.

6. Looking to the future—taking meeting challenges one step further

Ultimately the goal would be to link planners/policy makers with scientific data so they can make decisions with some understanding of the repercussions of their decisions in terms of economic and environmental sustainability. They also need to determine the real costs involved as well as the benefits to be obtained. One model of how to make this link is being implemented in the UK.

The United Kingdom National Environment Research Council and the UK Office of the Deputy Prime Minister have been funding a research-to-applications program termed Environmental Information System for Planners (EISP) (Culshaw, et. al.)

Eleven environmental science themes are incorporated including air quality. Underpinning the effort is a geographical information system (GIS) containing up-to-date information, and models relevant to each of the eleven science themes. EISP is a proof of concept set of web-based software that could be one way to respond to the challenge of making effective local decisions that involve science-based information and strategies – that is to say all of the decisions in a modern society. SHENAIR seeks to implement this concept on the local level.

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