

TESTIMONY BEFORE THE HOUSE OF REPRESENTATIVES
108TH CONGRESS
COMMITTEE ON SMALL BUSINESS
SUB COMMITTEE ON REGULATORY REFORM
AND OVERSIGHT

April 2004

Craig Lindell
Aquapoint Inc.
241 Duchaine Blvd., New Bedford, Ma 02745
Tel 508-998-7577--Fax 508-998-7177
www.aquapoint.com

CONTENTS

TOWARD A DISTRIBUTED AND ADAPTIVE INFRASTRUCTURE	P3
EPA AND WEF PERSPECTIVES	P3
INSIGHT INTO INDECISION AND THE PATH TO REFORM	P4
SELZER’S ORIGINS OF A WATERSHED FRAMEWORK FOR CONSERVATION	P5
EN LIBRA PRINCIPLES	P5
PRINCIPLES OF COMMUNITY PRESERVATION	P5
WATERSHED AS FULCRUM	P6
CHANGE IN PARADIGM	P7
ZONING FOR DISTRIBUTED SEWER	P8
LINDELL RESUME	P11

RECOMMENDATIONS

A DEMAND SIDE INFRASTRUCTURE NEEDS STIMULOUS (e.g. TAX INCENTIVE)

MOVE FROM COMMAND AND CONTROL TO COMMAND AND COVENANT

MOVE TOWARD ENVIRONMENTAL RESULTS PERMITTING

ENDORSE A CONTINUOUS PLANNING PROCESS

SHELTER LIABILITY

FOCUS ON COMMON POOL RESOURCE MANAGEMENT

CREATE AN AGENCY FOR WATER THAT IS FLEXIBLE AND ENABLING RATHER THAN POLICING IN ITS MISSION

TOWARD A DISTRIBUTED AND ADAPTIVE INFRASTRUCTURE
FOR WASTEWATER TREATMENT AND INTEGRATED WATER RESOURCE
MANAGEMENT

The limitations of our existing regulatory framework are at hand.” ... “The remaining water pollution problems are significantly more complex” ... “Complex problems require innovative solutions and entail a change in paradigm.”

(Tracy Mehan :U. S. EPA Office of Water Nov. 2001)

Almost everywhere in the world now, water is discussed and water-related policies are contemplated based on “watersheds” or “river basins” or other holistic terms. ...Little, if any, distinction is made between drinking, waste, or storm water because all of them effect public health, the environment and the quality of life for communities everywhere.

(William Bertera, WEF Executive Director)

Just a few months earlier WEF’s President William McMillan summarized the “five key components” of a watershed approach. They included:

- The delineation of a state into natural geographic management areas.
- A series of management steps to guide regulatory and non-regulatory actions geographically
- Integration of water resource programs with the Clean Water Act and management steps and partnerships.
- A process involving stake holders
- A focus on environmental results

The 21st century is already the century of water. Water will alter our world views, our values, our essential institutions and our economic activity.

The EPA Office of Water, has acknowledged the limits of natural systems, the inability of the current economic, legal and regulatory codes to address the complexities of water quality and supply and of the need for innovative solutions that would entail a “change in paradigm”.

It acknowledges that to live within the limits of “ambient environmental standards” and the carrying capacities of natural systems, we simply have to think differently about how we manage water.

This reference to the “change in paradigm” has enormous implications. It challenges the cultural foundations of our institutions.

Consider wastewater treatment. Neither the onsite nor the NPDES codes are sufficient to address integrated water resource and watershed management. They focus on prescriptive, command and control solutions for safe disposal and the reduction of contaminants. They do not provide for what Tracy Mehan identifies as the “limits (of the) assimilative capacity of the environment”.

Neither do they address the complexities of non-point pollution, water recharge and reuse, or the sustaining of natural systems that are essential to sustaining water supply and quality. They do not provide the flexibility to address watershed-based affordable solutions (environmental results). They provide no basis for managing nutrient loading to coastal zones or the use of new planning tools like the principles of community preservation.

Mike Leavitt, upon confirmation as the Director of the EPA, offered his perspective for reform. “More, Better, Faster, Newer;” ...“I envision a new wave of national environmental productivity...emerging ...from people joining together in collaborative networks for environmental teamwork”... “ This is a new sociology...enabled by new technology”. ”The Environmental Protection Agency can step forward...assist in getting them started, provide resources and in some cases, get out of the way.”

The change in paradigm is not before us it is upon us.

Insight into indecision and the path to reform

The dislocations between the traditional approach to wastewater management and the new values and strategies are increasingly apparent and quantifiable. They are important since they highlight the nature and urgency for reform.

TRADITIONAL APPROACH

Water quality
Wastewater is a pollutant
Disposal field is temporary
Pollution focus is point source

Boundaries based on political structures
Subsidized environmental compliance
Comprehensive Management Plan (CMP)
Preference for singularity

Infrastructure is supply side driven
Infrastructure is centralized
Infrastructure is closed architecture
Cash based accounting
Lowest capital cost procurement

WATERSHED APPROACH

Integrated water resource management
Wastewater is a resource
Disposal field is permanent
Pollution focus is nonpoint source

Boundaries based on Natural structures
Affordable environmental compliance
Continuous Planning Process (CPP)
Preference for diversity

Infrastructure is demand side driven
Infrastructure is decentralized
Infrastructure is open architecture
Asset based management
Value based procurement

About the same time that the Clean Water Action Plan acknowledged the need for an institutional structure to support watershed management, (P87) Larry Selzer of The Conservation Fund and the National Forum on Nonpoint Source Pollution suggested the “origins of a watershed framework for conservation”. The origins:

- Will be community based;
- Will integrate economic reality and environmental protection;
- Will be technology driven;
- Will be based on collaboration and not confrontation and
- Will be led by the nonprofit and private sectors and not by government.

This perspective is reinforced by three sets of principles

En Libre Principles endorsed by Mike Leavitt at the EPA

- National Standards, Neighborhood Solutions - Assign Responsibilities at the Right Level
- Collaboration, Not Polarization - Use Collaborative Processes to Break Down Barriers and Find Solutions
- Reward Results, Not Programs - Move to a Performance- Based System
- Science For Facts, Process for Priorities - Separate Subjective Choices from Objective Data Gathering
- Markets Before Mandates - Pursue Economic Incentives Whenever Appropriate
- Change A Heart, Change A Nation - Environmental Understanding is Crucial
- Recognition of Benefits and Costs - Make Sure All Decisions Affecting Infrastructure, Development and Environment are Fully Informed
- Solutions Transcend Political Boundaries - Use Appropriate Geographic Boundaries for Environmental Problems

The fundamental premise is that community and watershed preservation are more thoroughly identified and most efficiently served at the local civic level.

In the recently published “Principles for Community Preservation” the Massachusetts Executive Office of Environmental Affairs (EOEA) produced a comprehensive synthesis of development planning and watershed management. Its principals include:

- Protect communities’ unique character, quality of life, and natural and built resources through planning efforts from the municipal level up, and respect the interconnectedness of resources across municipal boundaries.
- Plan development and redevelopment in areas where infrastructure is already available or can be upgraded without causing damage to natural resources or straining local budgets.
- Promote the preservation of open spaces and natural resources including coastal resources, wildlife habitats and working farms and forests as part of a long –term economic strategy.
- Promote new economic development techniques that consider the physical and ecological limitations of our natural resources, such as the ability to provide water, assimilate pollutants, and support bio-diversity.
- Adopt zoning and provide incentives that encourage developers to choose less consumptive land use patterns.

The Watershed as Fulcrum:

“The watershed approach should not be seen as merely a special initiative, targeted at just a selective set of places or involving a relatively small group of EPA or state staff. Rather, it should be a fulcrum of our restoration and protection efforts, and those of our many stakeholders, private and public. Failure to fully incorporate the watershed approach into program implementation will result in failure to achieve our environmental objectives in many of our nation’s waters.”

Successful watershed management strives for a better balance between ecosystem and watershed integrity and the provision of human social and economic goals. Conditions precedent to achieving more normative watershed conditions:

- Reduce pollution sources by developing watershed water quality standards, such as using the concept of Total Maximum Daily Loads (TMDL) to control nonpoint source pollutants.
 - Protect and enhance riparian zones and ecologically sound management practices such as buffer zones.
 - Recognize in law and regulations that ground water and surface water interact.
 - Recognize in land management activities that rivers need room to roam, and their flood plains are inherently subject to flooding.
 - Recognize that dams change rivers and their ecosystems, but some of the negative consequences of dams can be mitigated through operational strategies that create more normative discharge and temperature regime.
 - Conserve and promote native species by creating native a biota reserves, restoring and reconnecting critical habitats and minimizing conditions that favor invasions of non- native species.
 - Promote best management practices for upland and riparian land uses as a means of controlling pollution, but recognize that the best practices for one watershed in one region of the country may differ from other watersheds in other regions.
- (National Research Council: New Strategies for America’s Watersheds)

If you consider the discontinuities, the Selzer Framework and the associated principles, these issue take on an urgency for which the solutions already exist. Not only does the reform potential already exist on the boundaries of the existing codes, but once we reach the community level value propositions are revealed that enable much of this infrastructure to pay for itself.

Additional material

“change in paradigm”.

- A “network centric,” performance based infrastructure to achieve integrated water resource and watershed management is readily available. The regulatory reform and the organizational structures already exist on the margins of our current institutions. This is critical. The “change in paradigm must emerge from within our current institutions or endure their resistance.
- This infrastructure, properly structured, has significant capacity to fund itself. A risk related environmental results framework as well as a more cost sensitive, fault tolerant and collaborative regulatory structure would contribute to making markets more predictable, innovative and affordable.
- The technologies and competitive markets to realize this infrastructure are already emerging by default because the planning and execution of traditional sewer is too conflicted and slow to meet demand. Early indications are that we can build a flexible, adaptable performance based infrastructure for 40% to 60% less than conventional sewer.
- Watershed integrity is essentially an issue of public health. Unfortunately, public health codes and technologies are prescriptive and they are frequently too limited by their prescriptive nature to obstacle to the watershed agenda. The mission of Public Health –assessment, policy formation, and assurance- is an iterative process of continuous improvement with measured outcomes. This is an essential process for monitoring watersheds and an essential component of the Continuous Planning Process.
- The network centric approach is the heart of innovation. It is adopted from “network centric battlefield warfare” where the battlefield, rather than the “platform centric” battle group, defines the skills, technologies, processes and organizations with which it will be addressed. A similar distinction is essential to watershed management.
- Platform centric dominance must yield to network centric responsibility. It is inherently environmental results and performance based. It demands of our institutions that they risk the changes necessary to provide for environmental results. More important this sets up the potential for rational conditions which are essential for the private sector innovation sought by the EPA.
- The sewer ordinances are provide for the management of common pool resources. They provide for mandatory participation, as well as the ability to issue bonds and collect fees. More important public sewer is the only commonly understood legal public instrument of which we are aware that provides the authority to make decisions on behalf of common pool resources over individual property rights.
- Municipal infrastructure is essential to the creation of value. The real wastewater issues are those issues of primary interest to citizens such as property values, water quality and supply, quality of life, economic development and the preservation of recreational resources. The ability to create perceived value (e.g. property value increases associated with municipal services (sewer) coupled with the authority of the commons) creates a zone of value.
- SRF money, tax incentives, legislation, watershed and open space grant money and other forms of stimuli are potential catalysts for this change.

Zoning for distributed sewer

In Carroll County they have significant development pressure, difficult soils, and the need to stimulate local economic development. Several years ago they concluded that they could not afford, nor would they receive subsidies for conventional centralized sewer.

At the time Carroll County was not aware that the EPA had endorsed “decentralized wastewater treatment” as a “goal of the Clean Water Action Plan” and as “a permanent long-term solution, to be evaluated on the same basis as traditional sewer”. Nevertheless, Carroll County began to prepare for the fact that they would have to rely on onsite wastewater treatment and disposal. Carroll County planners and health officials concluded that they should increase lot size from ½ acre to 1 acre to provide for an additional disposal field in the event of failure.

The doubling of lot size would cut the value of real estate in half. The alternative was to allow the ½ acre zoning if advanced treatment systems were used.

In discussions with Community officials, health authorities, planners and developers, environmental interest groups and citizens the following occurred:

- **The community planned to double lot size to an acre to provide for an extra disposal field**
- **Developers could retain current lot size if they provided aerobic treatment.**
- **Wastewater treatment could be decentralized with on lot or clustered systems.**

This appeared to be the best solution. It was the best solution under the onsite code. However, Carroll County was not anxious to use onsite aerobic treatment systems. Ultimately Carroll County decided to look at providing distributed municipal sewer. Their reasoning was:

- **There are no major obstacles to more than one collection, treatment and distribution system in a sewer district**
- **Lot size would not be an issue because under the sewer code lot size is not specified.**
- **If the community provided municipal infrastructure land values would probably increase.**
- **Therefore the community had the potential to create additional house lots and increases in property value for the developers.**
- **In exchange the community could secure a 50% open space design from the developer and use that open space for storm water and wastewater management.**
- **The community could also require that the developer construct the wastewater disposal system to meet watershed discharge standards.**

Essentially, the developer would build the infrastructure to meet watershed quality discharge standards and transfer it to the Community. Planners anticipated that property serviced by municipal infrastructure would increase in value enough to offset the cost of building it.

In fact as Carroll County explored the potential of distributed sewer for it became apparent that it could be an infrastructure with the capacity to pay for itself.

Properly structured:

- **Growth would pay for the new infrastructure that supports it.**
- **Rapid returns on investment would offset the costs to commercial sites through disposal field preservation.**
- **Appreciation in property value generally associated with municipal infrastructure would offset some of the costs of remediation.**

Carroll County's re-zoning is expected to be completed this spring. Developers have open space subdivision designs ready for submittal under the new zoning codes. The process has taken about 2 years. Its novelty and its effort to incorporate the principles of community preservation, watershed standard and value based procurement are to our knowledge unprecedented.

This transformation is primarily a process of altering perspective changing relationships and releasing value. It has little if anything to do with what can be bought with government funding. Its success depends on the process of public participation; of respecting and trying to address the interests of all members of the community.

When Carroll County started to discuss decentralized wastewater treatment some senior DEP officials were unfamiliar with the concept. Similarly State legislative efforts to secure 20% open space for development had failed to pass.

Distributed sewer offers communities the opportunity to provide for their citizen's wealth and well being. It is a pragmatic and democratic response to the real wastewater issues. It is active citizenship in pursuit of a framework to increase water quality and supply, to preserve the quality of natural systems and recreational resources, to enhance property values and provide for economic development, community preservation and the quality of life.

"Distributed sewer" is so immediately available and the risks involved in testing its efficacy so minimal that those communities who neglect exploring its potential will have to ask themselves if they passed on an extraordinary opportunity.

"Carroll County is not alone."

In Alabama, Cherokee County initiated legislative reform to set the stage for a

distributed infrastructure for wastewater management. In Mobile the same State a metropolitan area will take approximately 100,000 off its central sewer system treat the wastewater and reuse it to sub-surface irrigate a park.

Taking stress off central systems and water reuse may only be the start of a new agenda. “In its FY 2002 Strategic Plan, The EPA’s Municipal Support Division concluded; “If current levels of treatment are not increased, by 2016 wastewater treatment plants will discharge about as much Biochemical Oxygen demanding pollution as they did in 1972, before the nation adopted the landmark secondary treatment standard.”

In Massachusetts, watershed interests are exploring the roles they might play and the responsibilities they might assume to eliminate the loading of nutrients to drinking water aquifers and coastal estuaries. The irony they confront is that one primary source of nutrients is 1995 code compliant septic systems.

In Pennsylvania they are experimenting with affordable permits. In other states there is discussion of income tax deductions and property tax abatements to promote clustering and management. There is also a discussion of the use of SRF money to provide government loan guarantees in order to leverage the volume of funds available.

Wisconsin’s “Green Tier” and Massachusetts’ “Environmental Results” programs are contractual alternatives to the standard permitting process that offer flexibility and incentives in exchange for the pledge to exceed code compliant discharge standards.

These are not projects for purposes of public health. They are novel approaches that may prove to be extraordinarily consequential. They are indicator projects for the next infrastructure.

It is also about demographics, social trends, ecological economics and national security.

- **EPA studies indicate that 25% of the 109 million housing units are served by onsite wastewater disposal systems and that approximately 41% of new residential construction are being built with onsite systems. There is a consensus that 10%, or 2,5 to 3 million systems fail each year. Strangely, in the onsite world this rate of failure is acceptable.**
- **Market evidence also suggests that as much as 20% of new commercial construction is also being built with onsite disposal systems**
- **In the United States the "percentage of rivers designated as "impaired" has grown from 26% in 1986 to 36% in most recent years".**
- **The resale dollars lost on USA homes near polluted rivers and lakes are estimated to be \$5 billion annually.**

- **There will be little if any assistance from federal grants for municipal wastewater treatment because...”A system that reflects the full cost of treating ...water....will get far more value from the resource than a system riddled with subsidies”.(M. Albright.)**
- **“The availability of clean water has come to be recognized as perhaps the most critical of all human security issues facing the world in the next 25 years” (World Watch Institute)**

(This testimony reflects the draft position paper that was written at the request of the Water Environment Federation’s Small Communities Committee as it seeks permission to change its name and focus to The Small Infrastructure Committee.)

CRAIG LINDELL

INTRODUCTORY RESUME

Craig Lindell founded Aquapoint Inc. in 1992

He is a technical advisor to The Coalition for Buzzards Bay, and a member of the Water Environment Federation’s (WEF) Small Communities Committee. He has served on the Board of Directors Water and Wastewater Equipment Manufacturers’ Association (WWEMA) where he chaired the Wastewater Policy Committee.

He is active as a corporate partner in the Solutions Track programs of the International City and Count Managers Association (ICMA)

He serves on the Water Resource Committee of the New England Environmental Business Council and he is an active member of the National Council of Public Private Partnerships.

He is active in economic development and social entrepreneurship in Southeastern Massachusetts where he lives. He co-founded and chaired chairs a citizen’s forum on economic development and capital formation and he is a director of the New Bedford, MA Economic Development Council

Educated at Bates College and Yale University, he has published and he speaks nationally on decentralized wastewater management the watershed agenda and economic development.