

# **BUILDING THE INSTITUTIONAL MEMORY FOR FEDERAL WATER POLLUTION CONTROL POLICY: SHARED GOALS AND INCREMENTALISM DEFINE TRENDS**

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## **Introduction**

This reauthorization of the Clean Water Act of 1972, as amended, will be built on twenty years of national experience with that act, as it in turn was built on 24 years of experience with the 1948 Act (and its amendments, particularly in 1956). Indeed it is useful to consider the development of concepts from at least 1900, if not before, to assess where we stand today and what that evolution has to say about where we are going.

The headings of this paper are selected sections of the 1972 act and it is our intent to report on the evolution of each and to comment on some adjustments that could be considered, each based on our sense of the momentum of this applied intellectual history.

## **Title I Section 101 (e) The Objective...and (1) the discharge...**

“...to restore and maintain the chemical, physical and biological integrity of the Nation's waters...” and the two goals “(1)...the discharge of pollutants into the navigable waters of the United States be eliminated by 1985...” and “(2)...that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by 1981.” While in Title III Section 301 (b) (1) Effluent Limitations the Interim Goal for publicly owned treatment plants is “secondary treatment.”

The accompanying report of the House Public Works Committee spelled out that “integ-

riety” means “...the natural structure and function of ecosystems is maintained.” And “natural” means “... that condition in existence before the activities of man invoked perturbations which prevented the system from returning to its original state of equilibrium.”

The question almost asks itself: is it the most effective policy, now twenty years after Earth Day, to continue to declare that “Any change induced by man which overtaxes the ability of nature to restore conditions to ‘natural’ or ‘original’ conditions is an unacceptable perturbation.” If this goal is not attainable everywhere, do we need to clarify how we arrive at the decision of where it is and is not applicable, where it is not, how do we arrive at a decision for a proper goal?

The Committee went on to note that ecosystems are dynamic changing entities where natural forces such as floods, hurricanes and volcanic action are part of the general order of things. That scientists can identify “...with substantial confidence...” natural systems “...capable of preserving themselves...”.

How often and where do we as a nation spend resources trying to achieve very high cost but low return increments of improvement that make the final approaches to this goal while in another program or setting we are forgoing low cost, high return increments in improved water quality? We know we can't get the resources to do everything so how do we set priorities? Unattainable but morally defensible goals do have their place in a world of bargained and incremental results. This is probably particularly true when we as a nation are sorting out the moral values we want to apply to an

issue area such as water quality. For example, aren't we still transitioning between well-accepted values to save human life and the inclusion of protection of other forms of life? Thus we aren't sure how much effort we would spend to introduce more realism here, but it is worth a try.

In any case, it is in the history of another 1972 action, the Water Quality Agreement between the United States and Canada, where we suspect the answer lies to the "Zero Discharge" dilemma. In 1976, the Science Advisory Board of the International Joint Commission (IJC) outlined the Great Lakes as an ecosystem under their powers given by the 1972 Agreement. In 1978, when the agreement was revised, it adopted a significantly different definition for an ecosystem than that contained in the 1972 Clean Water Act "... the interacting components of air, land, water, and living organisms, *including man*, within the drainage basin..." (emphasis added).

A number of studies and policy actions since 1972 have worked within this definition, giving some substance to the need to work across media and agencies. At present the staff of the IJC is in the process of rewriting the initial 1976 report for further clarification and implementation. We expect them to attempt to operationalize questions of sustainable development — in other words, to recognize man's use and overuse of the natural system, but to set sustainability of an attainable ecosystem as the goal.

We would suggest that new goal statements would do well to follow a similar path listing the above components, including man, in a definition and with goals of (1) protecting human health and welfare; (2) maintaining essential and attainable ecological processes; (3) conserving and enhancing attainable biological diversity; and (4) providing for the sustainable use of renewable resources. The point is to encourage the definition of an ecosystem in workable, debatable terms, the identification of significant relationships between the elements, and the establishment of priorities that can be reflected in the program evaluation process.

Programs, institutions, people and funds, need to be held accountable to achieve specific understandable objectives. Our science can be put to this use.

## (2) ...an interim goal...

The "fishable/swimmable" interim goal combined with the secondary treatment goal for municipal plants provided much of the practical focus for the 1972 Act. The choice between Best Practical Technology and Best Available Technology for industrial discharge permits reflected many years of seeking equivalents to secondary treatment for household wastes — a proportion of removal of any pollutant at least comparable to the removal of oxygen demand attained after screening and settling (primary treatment), then holding waste water in a tank for an adequate retention time and passing it over filter beds. The bargaining over what was to be accepted as compliance changed dramatically, but it was to achieve an objective that had been long in mind by the public health establishment.

Enforcement before 1972 had to justify three elements. First was a use objective for a water body. Then, an ambient standard that fit that use. Third was evidence that was convincing that the particular discharge at issue in a permit or enforcement case would or did in fact cause the water to go below that ambient standard. New York, at least, passed an act in the early 1960's that all three had to be litigated at one time, not sequentially over the many years the courts would tolerate. After 1972, the hardware test simplified enforcement bargaining — what was the hardware required, (ie., similar to secondary treatment and specified by the same consultants used by the industry equipment manufacturers) and was it in place and functioning?

Policies requiring that publicly owned sewage treatment works provide secondary treatment were in place in many states by the mid 1930's. The pace setting role of a few states ready to innovate should not be overlooked in our federal system. The policy of requiring secondary treatment for

federal installations was adopted by the US Army for new construction during World War II. In 1961 authorization of flow releases for water quality purposes were authorized, but they were not to be used as a "... substitute for adequate treatment or controlling waste at the source." But what was to be the standard for "adequate treatment?" The Federal Water Pollution Control Administration established a treatment requirement consisting of 85 percent removal of organic matter, i.e., secondary treatment, and this was included for general application in an executive order signed by President Johnson in 1966.

Four decades of effort culminated in the 1972 Act. Is the secondary level of removal found everywhere? No, but the nation is quite close. Is that the same as "fishable/swimmable?" Treatment objectives need to be combined with other protections and enhancements if we are truly going to manage for this so called interim objective. We suspect that again a look at the historical record identifies paths we are treading and we think brings us back to the application of our suggested reworking of the first of the 1972 Act goals.

The technology forcing role of the 1972 Act is suggested above; it was also an administration forcing policy tool, and we suspect that this part of the approach may be a good candidate for stronger measures. There is a long history of planning for water quality. Stream classification systems and many of the early enforcement actions served to bring interests together to take ownership for goals and the facilitate steps to achieve them. It is ironic that as we have moved to adopt holistic concepts such as ecosystems and sustainability, diversity and natural stability that we have backed away from some of our experiments in basin management institutions. Is it time to revive that experimentation, and if so on what new terms?

A starting point is provided by the 1939 report *Water Pollution in the United States* which set the agenda for legislative bills for the next several decades. It called for "... the preparation of comprehensive plans for the abatement of water

pollution in each drainage basin of the United States...". The Potomac was proposed as a demonstration and was later the focus of a comprehensive study led by the US Army Corps of Engineers that had a water quality focus. The Ohio was chosen first because of the high concern of the citizens of Cincinnati and other Ohio River communities, and in response to the political responsibility of leaders like Ohio Senator Robert A. Taft, and the prospect of the role of a system wide management entity, ORSANCO, the Ohio River Sanitary Commission. The 1943 report that included input from the Corps, the flow management agency as well, synthesized most of the available knowledge and science of pollution control.

With World War II as at least part of the excuse, the Bureau of the Budget turned down the proposals of Chief Engineer Leslie Frank of the Public Health Service for six similar studies, a frustrated start of a program that would eventually cover the nation facilitated by provisions of the 1972 Act. By 1951, less than two years after finally receiving an appropriation to the Federal Water Pollution Control Administration (FWPCA), the first phase of a program of basin plans had been completed. Fifteen major basin reports, covering 226 smaller watersheds, summarized the pollution problem and outlined remedial programs to be undertaken by 22,000 cities and industries. By 1953, about 60 more sub-basin plans were completed. Under the 1948 Act financial aid to municipalities was limited to projects included in comprehensive plans. In 1956 the first \$50 million for a grant program was appropriated.

This first phase was seen as using available data to provide a reference point from which to measure progress and to provide a guide to needed additional data, to inform the public, set forth suggestions for remediation as well as a basis for cost sharing incentives. A more sophisticated second phase was initiated in 1958 but not significantly funded until 1962. From FWPCA leadership it was given the charge of not only including financial, technical and legal authorities but also to provide an emphasis on prevention of water pollu-

tion and to integrate water quality and water quantity. Most of the effort that ensued was focused in the FWPCA regional offices but much of the data and limited personal involvement was provided by the states.

In the 1965 amendments the framework for comprehensive planning was reaffirmed, if made a bit less ambitious, and the states were charged with the leadership role. Although basin and watershed plans had been made available to the Congress, they had never found a way to adopt them as policy documents. Even the precedent of the project-by-project authorization for the water development agencies such as the Corps and the Bureau of Reclamation, and in a modified way for the Soil Conservation Service and TVA with those projects flowing from a basin planning process, was not adopted. The shift to the States put the planning where it hopefully would better shape action.

Transferring the comprehensive planning responsibility to the states stimulated a capacity that had not existed except in a few pioneering and example setting cases. This was noted as a reason for slow progress by the water quality management system at *The White House Conference on Natural Beauty* in 1965. Likewise, the need to extend the secondary treatment standard was reenforced at this seminal workshop. Several of the key Congressional participants in the 1972 Act were involved in this conference and credit it with providing the basis for compromises that moved the 1972 Act to adoption. With the several sections of the 1972 Act, which built state capacity, including the often maligned learning exercise under section 208, it seems time to readdress the process of planning.

Tasks ahead for the nation to revitalize planning and, thus, our water quality policy that appropriately build on our historical base include, (1) the completion of the secondary treatment requirement as the equitable and attainable floor for waste reduction, (2) expanding the supplementation of that policy by implementing standards using appropriate risk management oriented crite-

ria, and (3) plan for and implement a policy of higher water quality in appropriate basins and watersheds throughout the United States, (4) recognize the indispensable ingredient in planning that it is a process of fashioning political commitment on the part of a variety of interest groups, agencies, and units of government that affect and benefit from pollution management in those basins and watersheds and not primarily a technical design process, (5) continue to expand the nonpoint source management institution building into a variety of programs of other agencies and non-water quality parts of USEPA, such as through the Farm Bill, the project authorizations for the water development agencies, Fish and Wildlife refuge management, solid waste, toxics management, water supply protection, etc., etc. but then bring them into the basin and watershed planning, and (6) greatly expand the efforts to build capacity in our smallest governments who serve the majority of the landscape that we are trying to protect.