NATIONAL CONFERENCE ON WATER

Panel #5: WATER AND ENVIRONMENT AND OUTDOOR RECREATION

Possible Discussion Issues - Respondent - Norman A. Berg
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Twenty years ago--"The Yearbook of Agriculture for 1955" was named "WATER." The Secretary's foreword stated, "I have little need to remind you that water has become one of our major national concerns. We need an increased awareness among all Americans of the oneness of our physical resources. Water, land, and people are inseparable components of one thing, our welfare. The subject of water can be viewed from the various aspects of soil conservation, forestry, wildlife, recreation, industry, law, and so on--but never alone."

The editor in his preface said, "There's a lot to be known about water. The realization of ignorance is the beginning of wisdom. Our hope is that you will read the book again, 10 years--25 years from now. All things, including weather and rainfall, change fast and our memories are short."

By Sunday of this week, having only the Panel Five issue paper from the moderator, I did reread that historic Yearbook as well as the 1958 edition named, "LAND." As Harry Truman said in his book, "The only thing new is history you haven't read."

This is a simplification but it is a caution as we pontificate this week.

Relationship of Water and Land Use - Environmental Considerations

- Balancing rural America's needs properly calls for wide participation, advance planning instead of crisis catch-up, and a realization by all parties that each must accept some tradeoffs so that all can achieve most of their aims--otherwise we all may lose.

- Rural America must maintain agricultural production while providing land for living, recreation, and open space for the expanding urban population. Balancing such needs results in degradation of a quality rural environment in many cases.

- SMSA's (Standard Metropolitan Statistical Areas) now include about 70% of the total population but only 1/8 of the land area.

- Ribbon development creates idling of productive agricultural land, isolation of farming enterprises, rising land values which result in higher taxes.

- Open space and recreation areas are usually the final product of fate, not the result of good planning.

- Erosion reduces agricultural production, destroys wildlife habitat, and diminishes hunting opportunities.

Erosion and Sedimentation - Environmental Concern

- Sediment carries nutrients which cause eutrophication of lakes and even contamination of drinking water.

- Sediment kills fish and impairs wildlife viability.

- Sediment reduces the esthetic quality of streams and rivers, thus reducing their potential for recreational use.

Agricultural Chemical and Animal Wastes - Environmental Concerns

- Chemicals properly used may still impact on water quality if excessive soil erosion is allowed...chemicals and nutrients may "piggyback" on sediment particles or wash off the land with sediment.

- Restrictions on pesticides and fertilizers lower crop yields and quality of product with increased production costs.

- Improper use of agricultural chemicals can have detrimental effects on receiving waters with resulting environmental damage. Proper use can increase agricultural production.

- An average of about 1 ton of solid waste per person is collected annually. Three-fourths of this waste goes into 14,000 dumps, mostly in rural agricultural areas. This waste often pollutes ground water, blows across the landscape, and is often detrimental to wildlife.

- Properly managed feedlots do not contribute animal waste to our streams and rivers. Such waste can be put back on the land and provide a valuable source of nitrogen and other plant nutrients.

Water Management - Both Quality and Quantity are Environmental Concerns

- Many river systems are becoming more saline as water withdrawals and return flows increase.

- We are planning to spend billions of dollars over the next few years to ensure a clean water supply, however, mostly point source control.

- As the quality of water supply deteriorates, the incremental costs to the user become increasingly greater.

- Important relationship between the quality of the supply and benefits derived by subsequent water user do exist.

- A "salt balance" must be maintained to continue agricultural production. Leach water is needed in some areas to maintain the "salt balance" thus further aggravate the salinity problem.

- Drainage is required to maintain agricultural production in many areas. However, disposing of highly saline drainage water creates difficult environmental problems.

- Water quality can be managed many ways, including releases of stored fresh water.

Role of Water and Ecosystems

- Man depends directly on thousands of species of living organisms for his needs.

- Unique ecosystems are often competitors for habitat and other resources (water) with other kinds of human uses and needs.

- It is not difficult to gain agreement that man-caused reduction or extinction of species is undesirable. However, it is more difficult to obtain such a consensus when the economic costs involved in habitat preservation, pollution control, etc., are included in the discussion.

SCS Program Contributions to Environmental Quality

1. PL-46 Program

   - Conservation plan--basis for all environmental planning--based upon land and water quality and resulting capabilities.

   - Erosion and sediment control is major thrust of plans and programs.

   - Contour terraces, grassed waterways, water control structures, pipe drops, pipelines, gully stabilization, etc., are but a few of the techniques used to control water to reduce erosion and eventual sedimentation in the nation's streams and rivers.

   - Water management plans are developed to ensure a continued supply of clean water.

- Crop rotations to maintain a stable and productive soil base, provide wildlife habitat and improve esthetic beauty are included.

- Management practices ensure proper range and pasture use which improves water quality of receiving streams.

- Windbreaks are planned to reduce wind erosion and eventual sedimentation in water courses.

2. Watersheds and Flood Prevention Projects

- Flood prevention (structures plus land treatment) measures reduce flooding, increase water quality through sediment storage, and provide economic as well as environmental benefits to the nation's urban and rural inhabitants. Increased agricultural production on lands already committed to agricultural use is made possible.

- Drainage allows farmers to increase agricultural production. Fish and wildlife habitat can be maintained and enhancement measures installed to increase certain fish and wildlife populations.

- Irrigation storage allows for incidental recreation while providing needed water supplies for production of agricultural crops.

- Irrigated areas provide for a diversity of habitat where only a desert or semiarid habitat existed previously.

- Recreation, fish and wildlife--water can be stored to increase recreation use as well as provide increases in fish and wildlife populations. Recreation facilities are provided at many reservoir and stream sites to encourage public use and enjoyment.

3. River Basin Planning (Assessments)

- The total role of water and its interactions with environmental concerns can be addressed.

- Water quality plans are prepared which account for future growth yet assure adequate supplies of high quality water.

- Planning activities are a cooperative effort with state agencies and departments. National, regional, and state environmental views are expressed and considered during the assessment of problems and opportunities for solution.

- Flood hazard analyses provide data which guide decision-makers in developing management plans for flood prone areas.

4. Resource Conservation and Development Projects

- Local initiative with emphasis on environmental quality in harmony with economic development.

- Total needs considered resulting in measure plans which can meet a wide variety of expressed needs - i.e., wildlife enhancement, recreation facilities, irrigation, drainage, stabilization, etc.

- Environmental quality major concern.

5. Soil Survey

- Inventory land quality and capability.

- Interpretations of soils data for various uses, including environmental considerations such as capability for use for septic tanks.

- Hazards such as slope and erosion are noted to ensure proper use to ensure reduced erosion and sedimentation.

6. Snow Survey

- Snow-pack measurements help identify available water supplies as well as predict flooding potential.

- Better water management results in better agricultural production as well as increased wildlife habitat in many areas.

- Long-term snowpack measurements also aid in locating and managing ski areas.

Adequacy of Policies Questioned in White Paper

- NED and EQ can be co-equals when Principles and Standards are fully implemented. Relative contributions to each account will be displayed and the decisionmakers will be aware of all identifiable beneficial and adverse effects. The system will work.

- Cost-sharing for nonstructural solutions is needed to ensure equal treatment between structural and nonsturctural solutions.

- SCS fully endorses active citizen participation in all program areas. District relationships result in a grass roots understanding of problems and opportunities for solution.

- Federal and state regulation for water quality management is effective for point source control. Non-point pollution resulting from cropland runoff for example will be very difficult to address using a regulation or permit system. SCS has been a long time provider of technical expertise as an incentive to get conservation on the land. Possibly a total package including regulation, effluent tax, and economic incentives would provide a more stable pollution control policy.

- Cost-benefits policies are adequate since the non-monetary values are captured and included in the other three accounts--Regional Development, Environmental Quality, and Social Well-being.

ADDENDUM

The Great Lakes Water Quality Agreement, with Annexes and Texts and Terms of Reference between the U. S. and Canada signed on April 15, 1972, included a reference asking that the International Joint Commission study pollution in the Great Lakes system from agriculture, forestry, and other land use activities.

An International Reference Group was later established to assess whether the boundary waters of the Great Lakes were being polluted by and from land uses in the basin and if so, what remedial measures would we recommend to the U. S. and Canada governments. The need for better definition of the impact of land use activities, practices, and programs on water quality in this area of both nations had become increasingly magnified. Our Land Use Group--I chair the U. S. section--was established in late fall of 1972--produced a comprehensive study plan within a year outlining need for an intensive four element approach for our report due in late 1977.

We emphasized these main tasks:

A. To assess problems, management of programs and research and set priorities on the best information now available on the effects of land use on water quality.

B. Inventory land use and practices, with attention to trends and projections to 1980 and, if possible, to 2020.

c. Intensive study of a small number of representative watersheds to relate contamination to water quality to specific land uses.

D. Diagnose the degree of impairment of water quality in the Great Lakes, including assessment of concentrations of contaminants of concern in sediments and effect on fish and other aquatic resources.

The "state of the art" assessment (Task A) of 17 categories of land use and management--now published in two volumes--was a joint effort of our Reference group, the Great Lakes Basin Commission, U. S. Department of Agriculture, Environmental Protection Agency, and fifteen principal investigators primarily from Ohio State University, the University of Wisconsin, and Cornell University. The findings are currently being summarized to serve as a basis for further work as needed.

One study section, "Effects of Recreation and Recreational Land and Water Use on Water Quality in the Great Lakes Basin," prepared by the Water Resources Center--University of Wisconsin, Madison--is 172 pages of valuable data.

There are numerous types of pollutants that result from recreational use of land and water.

For instance, sediment and detritus result from soil erosion and runoff from parks, from land-based activities, including skiing, snow mobiling, off road vehicle use, and from marina construction and dredging, summer home and resort developments, and road and trail construction.

Plant nutrient inputs, especially nitrogen and phosphorous--arise from septic tank systems, from fertilizer applications, from leisure boat sewage and so on. Heavy metal enrichment can be derived from outboard, marine and snow mobile engines using leaded fuels, lead shot from duck and goose hunting and mercurial fungicides applied to golf greens.

Direct inputs of oil and toxic fumes (hydro-carbons, carbon monoxide, nitrogen oxides) occur from marine engines and indirect influx from automobiles, snowmobiles and other recreational vehicles. Lastly, biological pollutants (bacteria and virus) are derived from boat sewage, septic tank effluent, groundwater from stables and swimming and bathing activities.

Some of the pollutants are deposited directly in the lakes and tributary rivers, others are carried in by runoff, while others enter through the groundwater aquifer.

Preliminary indications do, admittedly, suggest that for the Great Lakes themselves, adverse effects on water quality arising from recreational use of land and water are generally minor or negligible. If problems arise, they are likely to be temporary and occur in strictly localized situations. Acute or chronic difficulties are more likely to be encountered with smaller lakes, impoundments, or streams within the Basin.

A vast increase in recreational land and water needs is anticipated within the next 50 years because of population growth, greater affluence and relative increases in leisure time and improved accessibility of outdoor water based recreational areas.

We are concerned that any deterioration in recreational water quality in rivers and smaller lakes places greater demand and stress on the Great Lakes boundary waters. Also, because most recreational activities are of recent origin, compared to agriculture, forestry, or business and urban land uses, many areas have yet to formulate personal behavior patterns on the lands.

As with other land uses that can affect water quality, there is a dearth of reliable quantitative measurements of pollutant inputs from the many sources.

From a legal standpoint, a variety of federal and state laws, and local ordinances should help prevent abuses and ensure that future developments comply with recognized progressive practices.

These include:

--Requirements of environmental impact statements.

--Recreational vehicle licensing.

--Compliance with land use zoning, water quality standards, engine emission standards, boat sewage disposal regulations and plumbing and health codes. In addition, recent technology should produce:

--Improved septic systems.

--Inboard marine sewage treatment systems.

--Marine engines with crank case drainage recycling.

--Unleaded fuels and non-lead grapeshot for wildfowl hunters.

We should increasingly correlate the physical use capacity and limitations of the resource with the satisfaction of the recreational experience of the site users and the environmental consequences or overuse.

Studies are needed to develop meaningful correlation between the presence of coliforms and real health risks from pathogens in recreational waters. New methods are also needed for building on problem soils--including poorly functioning septic tanks. Until that happens new developments should be severely restricted on certain soil types.

Additional demonstration projects are desirable and expanded water quality monitoring programs will help--especially at time of peak use rather than routine intervals.

More education and practical information of good anti-pollution practices during recreational use of the Nation's waters will serve as aid to environmentally concerned recreationers.