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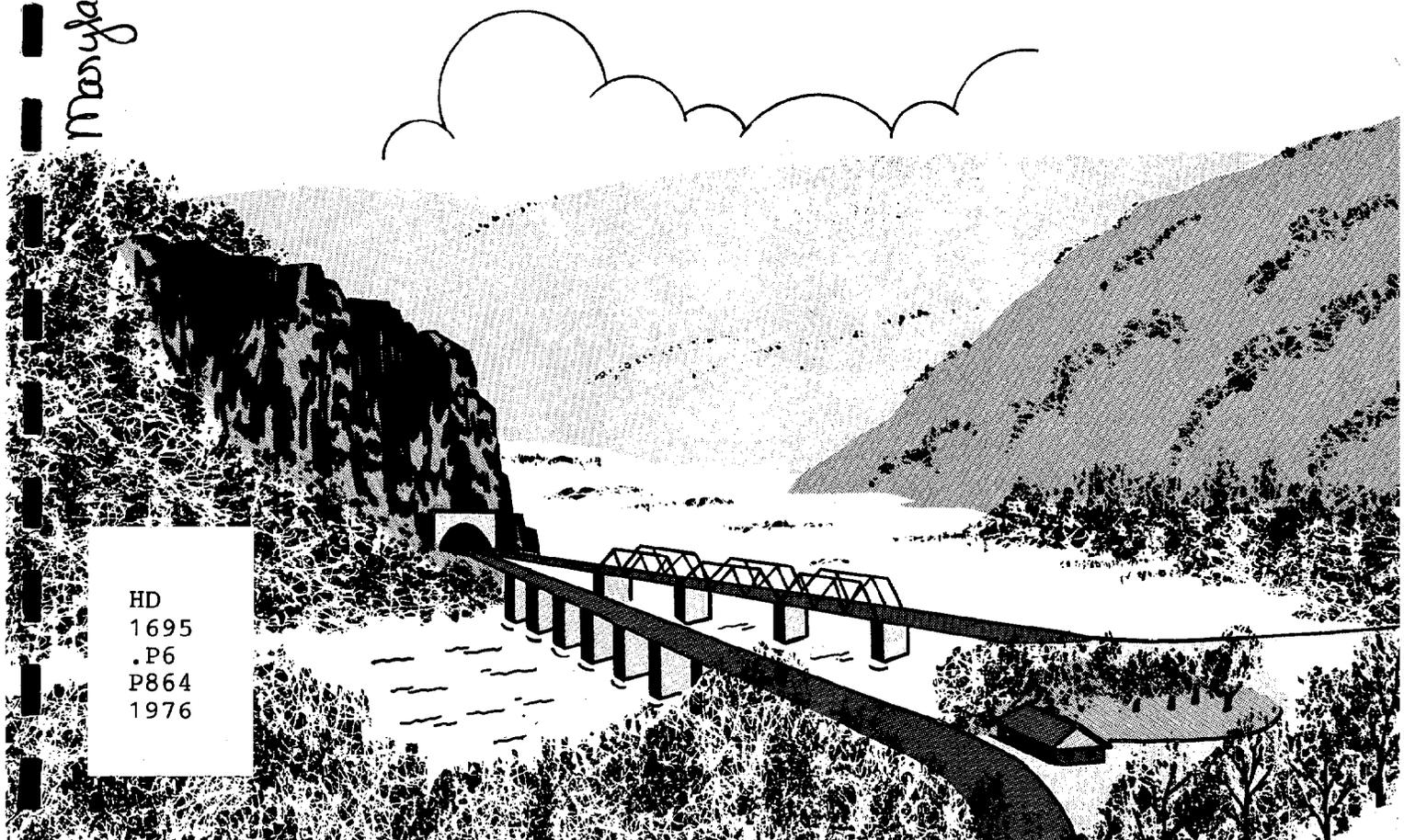
TOWARD A POTOMAC ACTION STRATEGY

Conference Proceedings

November 4-5, 1976

Maryland Dept. of State Planning

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The Potomac Conference

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Conference Proceedings

November 4-5, 1976

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ACKNOWLEDGEMENTS

The Potomac Conference owes its potential success to all of those within the Basin who care and are willing to promote action in addressing the many pressing issues.

The Department wishes to acknowledge and thank the many individuals and agencies who participated in the Conference and all the related meetings before it; and those that are to follow. In particular, the Department extends its gratitude to Mr. Larry Houstoun of U.S. Department of Housing and Urban Development for his support since the inception of the Potomac Conference concept. Likewise, the representatives of the States and the District of Columbia, and the group leaders and recorders at both the Pre Conference meeting and the Conference must be thanked for the extended hours and efforts requested of them. The assistance of staff of the Interstate Commission on the Potomac River Basin was essential to the success of the Conference. And notably, the diligent and thorough labors of John Starr prompt our thanks.

INTRODUCTION

The Potomac Conference was held at the Sheraton National Motor Hotel, Arlington, Virginia, on November 4 and 5, 1976. Its purpose, as stated by Secretary Vladimir Wahbe, Maryland Department of State Planning, when he opened the Conference, was "to consider and recommend strategies which will lead to an action program for guiding the orderly planning, conservation, and development of the Potomac River Basin's land and water resources."

This document contains the proceedings of the Conference, including the Conference recommendations, the speeches which were delivered, and summaries of the group discussions which were held. In the appendix is the Conference agenda, as the Conference was actually conducted, a list of the Conference participants, and a copy of the frequently referenced telegram from, then, President-elect Carter.

The Potomac Conference and work associated with it, including the preparation of this document, is being financially aided through a Federal grant from the Department of Housing and Urban Development under the Comprehensive Planning Assistance Program authorized by Section 701 of the Housing Act of 1954, as amended.

Cooperating with the Maryland Department of State Planning and other Maryland State agencies in this effort are a number of governmental and non-governmental organizations. These include various departments and agencies of the Federal government, the District of Columbia, the Commonwealth of Pennsylvania, the Commonwealth of Virginia, the State of West Virginia, state and local government elected officials, the Interstate Commission on the

Potomac River Basin, the League of Women Voters, and a number of Potomac oriented industrial, civic, and conservation organizations.

In preparation for the Conference, a Pre-Conference meeting was held at Winchester, Virginia, on March 18 and 19, 1976. The function of this meeting was to assemble a group of persons who had knowledge of Potomac issues and problems so that they could discuss them freely, with the purpose of not only delineating these issues and problems but, also, of suggesting solutions to some and pointing the way toward the solution of others. The results of the Pre-Conference meeting were documented in a report that served as background for the deliberations at the Conference.

The Potomac Conference was not an end unto itself. President-elect Carter has been contacted to consider the Conference recommendations that require Federal leadership or participation. The conference recommendations brought to his attention included: 1) the need for a water conservation/demand reduction program for Federal facilities; 2) a program for increased recreational use of the urban river from Great Falls to Mount Vernon; 3) the need for the effective implementation of the Federal Water Pollution Control Act particularly the release of impounded Section 208 monies; 4) the enactment of federal coal mining and reclamation standards; 5) executive support for the Potomac National River; and 6) the need to establish a focus of Federal interest in the Potomac River Basin.

Additionally, meetings have been held and scheduled with the representatives of the States and the District of Columbia to instigate action on the recommendations made at the Conference. Additional details, developed as a consequence of those meetings will be discussed more fully in a sequel to these Proceedings.

C & O Canal National Historical Park, United States Department of the Interior



RECOMMENDATIONS

THE RECOMMENDATIONS:

A SYNOPSIS

Conference participants, organized in seven topical work groups, contributed to a diverse set of recommendations for resolving Potomac related issues. Topics discussed were: Water Supply, Water Quality, Urban and Major Public Facilities, The Estuary, Recreation, Agriculture and Forestry, and Mineral Resources. The reports of these work groups have been summarized in the second section of these Proceedings. What follows is a list of specific recommendations and suggestions made during the Conference. They are indicative of the discussions' breadth and the need for action. Discussion in support of these recommendations can be found in the various speeches, work group reports and the Pre-Conference report.

Suggestions and Recommendations of SECRETARY VLADIMIR WAHBE in the statement of Conference Objectives:

1. Develop a basin-wide Conservation and Growth Management Policy to insure a future of balanced growth and conservation in a manner that is sensitive to the physical, economic, social, and environmental conditions.
2. Promote an understanding of Potomac values and issues among citizens and elected officials.
3. Create a coalition of varied interests motivated to guide and monitor the plans and programs for the River and its basin.
4. Coordinate programs and actions of various jurisdictions and levels of government.

Suggestions and recommendations of Dr. ABEL WOLMAN in his Keynote Speech:

1. Agree on a limited list of undertakings of the highest priority for the people of the Basin.
2. Consider the cost of those undertakings in establishing priorities.

3. Review past policy decisions and revise if the problems or conditions to which they were directed have changed. Likewise, consider seriously the previously proposed or available solutions rather than postpone action in search of a more advanced solution.
4. Examine closely the issues related to sediment for it is one of the important problems of the Basin.
5. Reconcile upstream and downstream antagonism.
6. Find a mechanism by which to activate your recommendations.

Suggestions and recommendations by topic:

WATER SUPPLY

1. Initiate water conservation and demand reduction programs.
2. Early construction of the Verona Dam and Lake project.
3. Complete the analysis of the potentials and problems of water withdrawals from the upper estuary.

WATER QUALITY

1. Effective implementation of the Federal Water Pollution Control Act of 1972 including the release of impounded Section 208 monies and funding of Title I research provisions.
2. Establish a focus for the Potomac River Basin, through some appropriate visible mechanism incorporating the Federal agencies, States, and local governments.

THE ESTUARY

1. Continue strong protection of tidal wetlands.
2. Provide protection of fresh-water wetlands.
3. Cease the use of the upper estuary and its embayments as a sewage lagoon by the use of land application and other useful means.

4. Apply a "no discharge" policy in areas of exceptional ecological significance.
5. Preclude, to the highest degree feasible, the discharge of oil and deleterious materials into the estuary and its tributaries.
6. Achieve the intent of the Potomac Estuary Monitoring Program for comprehensive chemical and biological examination and monitoring of the estuary.
7. Use, where appropriate, alternative methods of treatment of domestic wastes from scattered households and small communities.
8. Improve the documentation of past, present, and potential uses of the estuary.
9. Identify areas for the exclusion and location of major public facilities and industries.
10. Develop improved methods for dealing with land and water resources related to the estuary.

RECREATION

1. Develop a program for better recreational use of the Urban River (from Great Falls to Mount Vernon).
2. Provide tax incentives for the donation of scenic easements.
3. Establish and maintain low density conservation or agricultural zoning along the boundaries of the C & O Canal Park and acquire additional land for access to both shores of the River.
4. Limit access and increase enforcement in slackwater areas to insure safe and meaningful experiences for users of the river's surface.
5. Undertake a cooperative study of recreational resources of the estuary.
6. Consider local and state management and acquisition alternatives before recommending expensive and direct Federal responsibility.

7. Resolve conflicts between recreational uses of the river.

URBAN AND MAJOR PUBLIC FACILITIES

1. Institute an interjurisdictional growth management program for the urban areas of the basin.
2. Develop economically feasible and environmentally acceptable techniques for disposal of sludge and solid wastes in reclaiming old mines.
3. Identify sites for use by industries and major public facilities.

AGRICULTURE AND FORESTRY

1. Use leaseback agreements for sustaining agricultural and forestry practices on lands acquired for recreation and open space.
2. Organize a committee, or group, under the sponsorship of the Interstate Commission on the Potomac River Basin, to consider all matters related to agriculture and forestry and how these activities relate to other matters of concern in the Basin, and take steps toward coordination of efforts.

MINERAL EXTRACTION

1. Develop Federal coal mining legislation to produce uniform standards as related to land and to water quality.
2. Periodically exchange relevant State agency personnel for mineral and mineral-related environmental activities between the States of the Basin.
3. Accelerate the Corps of Engineers study of acid mine drainage in the North Branch area.
4. Investigate the feasibility of a mine mouth electric power generating plant, located so that it can use and treat water from Bloomington Lake for cooling.

5. Consider a Federal severance tax on coal to equally minimize and correct the negative impacts of mining throughout the country.

INSTITUTIONAL AND EDUCATION

1. Organize a new and continuing citizen alliance for monitoring and advocating on behalf of the Potomac River.
2. Inform both citizen and elected officials of the needs of the River and its constituency and provide continuing education on those matters.
3. Expand the capabilities of the Interstate Commission on the Potomac River Basin for use as an agent for coordinating the various interests and issues of the Basin.

WATER SUPPLY DISCUSSION GROUP

LEADER: Thomas G. Schwarberg
Virginia State Water Control Board
RECORDER: Jim Noonan, DSP

First Session.

During the first session, the Water Supply Group discussed the entire Potomac water supply problem, looking, even if briefly, into many possible solutions: upstream storage, use of the estuary, water system interconnections, small impoundments (such as constructed by the Soil Conservation Service under its Public Law 566 program), high-flow skimming impoundments, land treatment of wastewater, ground water, and water conservation.

The ongoing Washington Metropolitan Area (WMA) Water Supply Study by the Corps of Engineers was noted. This is regional in scope and will cover in detail the possible solutions to the water supply problem as outlined above. It is of interest that the WMA Study recognizes that water supply is only half of the water needs problem, with wastewater management being the other half, and that they must be considered together in any complete consideration of water resources. The Study is scheduled for completion in 1983, a date which the group considers should be advanced because of the extreme urgency of the problem.

Discussions were based on the assumption that the Bloomington Dam will shortly be completed and that the proposed Sixes Bridge Dam will not be constructed in the foreseeable future. The taking of water from the estuary was not discussed in detail, other than deciding that it holds promise.

Two essential issues emerged from the discussions:

1. Actions for meeting short-term demands.
2. Actions for meeting long-term demands.

In both, immediate action should be possible so that one immediately critical problem of water supply may be addressed while awaiting longer-range solutions, such as may come out of the WMA Study. The group considered that short-term demands can be met by demand reduction practices which will also, incidentally, assist in meeting long-term demands. Immediate long-term demands can be met by the early construction of Verona Dam, although it must be recognized that as population increases, additional water supply will be needed and actions toward meeting these increasing demands must be continued.

Reductions in water demand may be achieved in several ways: the use of plumbing devices to reduce water use, pricing, and conservation practices. Further discussion of these was reserved for the second session.

Although the Verona Dam and Lake project is the most promising for the early furnishing of upstream storage, there are several difficult problems which must be resolved before the project can go forward. One of these is the strong local opposition to the project; another is the difficulty in funding the project, a matter which cannot be resolved until a firm estimate of project cost is available.

Second Session.

In its second session, the Water Supply Group concentrated on discussing ways in which a reduction in water demand may be achieved and the Verona Dam and Lake project be constructed.

As noted in its first session, practices which will result in a reduction in water demand will, if carried out vigorously, have both short-term and long-term benefits. These practices can include:

1. The use of plumbing devices to reduce water use. Such devices, of which there are a good number, could be required in all new construction and could be encouraged as replacements in existing construction. To require such devices in new construction will require plumbing code revision in some jurisdictions; actions to accomplish this should be taken promptly. Where there is Federal or State aid in construction, the use of such devices can be one of the requirements for receiving such aid.

2. Pricing. This can be effective, but it raises several questions. How drastic should price increases be? Should there be different rates for different classes of users? (As, for example, higher rates for those who can afford them or against lower rates for those who cannot.) Should there be different rates for domestic, industrial, and public use? Should pricing be used as a measure for demand reduction only during emergency periods? If so, how and by whom would the emergency period be decided? While there would probably be resistance to price increases during periods of high flow in the river, there is the cost of pumping, treatment, and distribution of large quantities of water to be considered.

3. Conservation practices. Education for the conservation of water, which is analogous to the conservation of energy and

which is related to it, could be through such organizations as the Interstate Commission on the Potomac River Basin, the Washington Suburban Sanitary Commission, the Corps of Engineers, the several States and other jurisdictions, service organizations, and conservation groups. A vigorous program, well planned and carried out, could be very effective.

Early action with regard to the Verona Dam and Lake project requires the resolution of the funding problem and the resolution of the conflict between downstream water users and upstream interests in whose area the project would be constructed. The first essential for solving the funding problem is a firm estimate of project cost, and this should be arrived at as promptly as possible. The important thing here is that not only is Federal cost involved but also local cost which always provides difficulties and causes delays. Although this project is primarily for downstream water users, there are also certain benefits to upstream interests, such as water supply and recreation opportunities. A vigorous program is called for in the interest of reconciling opposing views, and this should receive top priority. This will involve, at the very least, the Corps of Engineers, and the Commonwealth of Virginia and will require skills of the highest order. It was suggested in the group that the Water Resources Planning Board of the Washington Council of Governments (COG) could be a possible mechanism for resolving the conflict. While the primary purpose of this body is to deal with wastewater treatment, it may be able to function here also. The ICPRB may also be of assistance here.

The two recommendations of the Water Supply Group are:

1. Early action in water demand reduction practices.

2. Early action in resolving conflicts which delay the construction of the Verona Dam and Lake project and early initiation of construction.

WATER QUALITY DISCUSSION GROUP

LEADER: Henry Silberman
Maryland Department of Natural Resources
RECORDER: Larry Fogelson, DSP

First Session.

The first session of the Water Quality Group opened with a summary of the water quality throughout the Potomac River Basin given by William Mason of the Interstate Commission on the Potomac River Basin. About half the waters of the basin were classified as good to excellent in quality, with the remainder suffering from acid mine drainage, eutrophic conditions, high sediment loads, toxic substance residues, and bacterial degradation.

The discussion which followed included:

1. Consideration of the objectives of water quality standards.
2. Whether the standards are adequate for the various uses of the Potomac River.
3. Whether differences in water quality standards among Basin jurisdictions result in management difficulties.
4. Whether standards should be goals or be immediately achievable.
5. Whether present processes for reviewing and revising standards are adequate.
6. Whether existing standards are adequate for meeting the requirements of Public Law 92-500.

The group consensus was that existing water quality standards are currently adequate and that there must be no wholesale downgrading of these standards.

Issues which were discussed in preparation for making specific recommendations included:

1. In-stream treatment techniques (such as aeration in the estuary and chemical treatment in the acid North Branch) be evaluated along with alternative pollution source abatement and treatment techniques.

2. Alternative wastewater management techniques in Montgomery and Prince George's Counties and the possibility of expanding the Blue Plains Sewage Treatment Plant.

3. Conservation techniques as a means of expanding available sewer and treatment plant capacity; this would require extensive public education.

4. Relating water quality standards to use protection, but also taking into account assimilative capacity and seasonal variations. (There was considerable discussion of this as it was seen by some to imply consent for down-grading water quality standards.)

5. A mechanism or institutional arrangement for more effective intergovernmental and interjurisdictional communication.

6. Adequate funding, including the release of impounded funds, to support Section 208 planning.

7. Achieving a meaningful State-local partnership in Section 208 planning in non-designated areas.

8. Actively seeking more funds for research into improved and more cost-effective waste treatment processes and alternatives.

Following the group discussion, comments by individual members added the

following for consideration when drawing up recommendations:

1. There is a need for identifying the focus of Federal interest by some appropriate visible mechanism with which the State and local agencies may deal.
2. There is a need for the release of impounded funds and for adequate funding to conduct planning authorized by Section 208 of P.L. 92-500 in all areas of the Basin.
3. A water conservation (demand reduction) program is needed, with the requirement that water-saving devices be used in all new construction.
4. The ICPRB should recruit and assign a planning "watchdog" in each county of the Basin to monitor each Section 208 facilities plan so that there is full public review and involvement throughout the planning process.
5. The ICPRB should prepare an annual priority list, including (1) basic data needs, (2) general investigations and studies, and (3) construction activities in the Potomac River Basin, following the guidelines of the Water Resources Council for the preparation of such reports by Title II River Basin Commissions (Public Law 89-80).

Second Session.

In its second session, the Water Quality Group considered its previous discussions and adopted four criteria to be applied to each of its recommendations. They were:

1. It must be a "do-able" concept or project, one which can be accomplished.

2. It must hold promise for early initiation.

3. It should have basin-wide interest.

4. It cannot now be achieved readily because the mechanism for achieving it is not now in existence or is weak or faulty.

Using these criteria, three recommendations were selected:

Recommendation 1. It is recommended that each water supply utility and the associated regulatory authorities in the Basin institute or implement a water conservation (demand reduction) program in its service area, and that water-saving devices be used and required in all new construction. Consideration should also be given to making such a program a pre-condition for Federally-funded or State-funded water and sewer projects. Actions which can be taken are:

a. The appropriate executive agencies in the States and the District of Columbia be encouraged to introduce such legislation or ordinances in their respective legislative bodies as may be necessary to accomplish this.

b. The League of Women Voters and other public interest groups be encouraged to promote and support such legislation in areas in which they have interest and influence.

c. The ICPRB consider promoting the concept of water demand reduction, possibly through the use of a section under its Article III.

Recommendation 2. It is recommended that a focus of Federal interest in the Potomac River Basin be established in the near future. Although the basic responsibility for water resources management in the Basin rests with the States involved, and although there must be coordinated programming with local governments, there is a need to identify the focus of Federal interest in the Basin by some appropriate visible mechanism with which the States and local agencies may deal. Several feasible alternative actions for achieving this are:

- a. Establishing a Federal Coordinating Group in the Basin.
- b. Establishing a Title II River Basin Commission.
- c. Establishing a Section 208 successor agency.
- d. Having the ICPRB carry out this function.
- e. Making it work within the present Section 208 planning process.

Recommendation 3. It is recommended that the Governors of the States of the Potomac River Basin, the local and regional agencies involved, and all constituencies of the Basin lobby early in the next session of Congress for the release of impounded funds and for the authorization and appropriation of adequate funding to carry out planning pursuant to Section 208 of Public Law 92-500 in all areas of the Basin (as well as in the rest of the nation). Actions which can be taken for achieving this are:

- a. Request the National Governors' Conference to pre-

pare a draft bill for this purpose.

b. Obtain endorsement of this approach from public interest groups.

c. Lobby for the enactment of this legislation and the needed Federal financial support to complete the Section 208 planning process in the Potomac River Basin in an early and acceptable manner.

URBAN AND MAJOR PUBLIC FACILITIES DISCUSSION GROUP

LEADER: Dr. Lewis Waters, District of Columbia
Municipal Planning Office
RECORDER: Mike Shepherd, DSP

First Session.

To begin the first session, the Urban and Major Public Facilities Group discussed the need for a set of goals, under which various proposals can fit together in a logical manner, and which would form a basis for agreement among the States and other jurisdictions. It would be a framework within which the various jurisdictions could utilize a variety of methods (policies) to accomplish desired actions.

Four major "issue-objectives" were set forth:

1. To ensure long-term dependable water supplies for urban areas in the Potomac River Basin.
2. To ensure water quality control measures to meet the requirements for a clean Potomac.
3. To manage the use of floodplains in order to reduce damage.
4. To base the siting of major public facilities on acceptable environmental, social, and economic criteria, with the key word here being "acceptable."

Other concerns were added to the list of issues, as follows:

1. The need for the preservation of scenic and natural feature amenities in urban areas.
2. The management of growth, with special attention to land use management, Federal government facilities, water and sewer

availability, and the pattern of new urban developments.

3. The effects of indirect source pollution from urban areas.

4. The need for economic impact assessments of environmental decisions.

One action step which was discussed with a view toward immediate applicability was water conservation, or, rather, water demand reduction. This would work toward a reduction in water supply and a reduction in waste water and would affect the siting of such public facilities as water treatment and sewage treatment plants by reducing their potential size. A water conservation strategy could have several parts:

1. An increase in user rates.

2. Revised plumbing codes, with time limits for retrofitting in built-up areas.

3. Conservation at Federal, State, and local installations (these are substantial users).

4. An information/education program such as that of the Washington Suburban Sanitary Commission.

The group discussed growth management as a long-term issue. As population and, with it, urban growth increase, proper management of the growth could have some important results, including:

1. A decrease in water demand.

2. A reduction in waste water.

3. Controlled use of the floodplains.

4. An effect on public facility siting.

Other possible features might be population and employment monitoring,

zoning, other types of building controls, visual or scenic easements, the protection of natural features and historic districts, and the control of development.

There was general agreement in the group that the Maryland siting program can serve very well as a model for the siting of major public facilities, with some comment that there is a need for more aggressive decision making by State agencies in regard to the placement of some of these facilities.

Second Session.

Two issues were seen by the Urban and Major Public Facilities Group as not only being of great importance in a Potomac action strategy but, also, as lending themselves to some measure of attainment. One, which would have both short-range and long-range benefits, is water conservation. Water supply and, along with it, water quality are among the foremost, if not the foremost, problems in the Potomac area. The other issue, which has long-range implications, is growth management.

Water conservation can be accomplished in a number of ways. Several put forward by the group are:

1. It can be a Federal goal in the Washington Metropolitan Area, just as energy conservation is (there is the President's goal of a 15% reduction in energy use), and could be accomplished through education, Congressional action mandating water conservation at Federal installations, or Executive Order requiring the same thing. The Federal government could set a strong example for water conservation.

2. Pricing can be used, with various water rates for various classes of use. It was emphasized that for pricing to be effective, the increase in rates must be fairly sizeable.

3. Water-saving devices can be used, with such changes in plumbing codes as may be necessary to accomplish this. In this connection, the National Capital Planning Commission could add a review of utilities to its review of Federal projects.

4. Educational programs can be used, such as that of the Washington Suburban Sanitary Commission.

5. A Title II commission under the Water Resources Planning Act might be established for the Potomac River Basin or, at least, for part of it.

6. Greater support can be given the Section 208 planning process with emphasis on speeding it up.

Growth management for the urban areas of the Basin is important in that it would directly affect water demand, waste water collection and treatment, undesirable building practices, floodplain use, the encroachment upon open space. There are, however, both positive and negative points of view with regard to growth management. Some jurisdictions want a growth policy for limiting growth while others want a growth policy for encouraging growth. It was suggested that the Interstate Commission on the Potomac River Basin survey the needs of the several jurisdictions in the Potomac area, particularly the urbanized areas, to determine what interest there may be in growth policy programs.

It was also suggested that the ICPRB is a good starting point for education in both growth management and water conservation, that the mechanism is already in existence although it may need some modification and strengthening.

THE ESTUARY DISCUSSION GROUP

LEADER: Dr. L. Eugene Cronin, University of Maryland
Center for Environmental and Estuarine Studies
RECORDER: Steve Maisenhalder, DSP

First Session.

The first session of the Estuary Group was given over to taking an analytical look at the estuary, tying it into land use (including upstream land use), economic development, and the various acts of man. It was noted that the estuary is a complex eco-system; that it is the receiving water for the entire Potomac River Basin; that it is biologically rich, historically important, aesthetically magnificent, and highly useful to many; and that, with increasing population pressures, its problems can only increase in scope and severity.

Many uses of the estuary, most of which are subject to constraints or hindrances, were identified:

- Fresh water supply
- Recreation
- Aesthetic enjoyment
- Cooling water for electric power generation
- Commercial shipping
- Mining of sand and gravel
- Waste placement (not disposal-the wastes are not disposed of; they are only placed in the waterway.)
- Biological harvest
- Development
- Research and education
- Climate modification

Military purposes

Some of these uses affect other uses directly or indirectly; many, if not most, are affected by pollution of one kind or another; some seriously disturb the ecological balance of the estuary; some are affected by the disturbance in the ecological balance.

Four broad issues came out of the discussions:

1. There is a substantial present deterioration in the aesthetic quality of the upper estuary, and the predicted massive increase in population threatens further degradation, especially from partially treated sewage.

2. There has been a significant decay in the biological health of the estuary. This is worse in the upper 20 to 30 miles, but may be moving down the estuary. Biological health is considered to be of the highest importance as assurance of the usefulness of the estuary.

3. There is an increased direct conflict between and among uses. Utilities, shipping, mining, and waste placement can conflict with fisheries and biological health. Waste placement damages aesthetic quality.

4. Society has not yet agreed upon objectives for the management of the estuary, defined the optimal balance among uses, measured the full costs and benefits of alternative decision, determined the best investment of limited available funds, or obtained adequate ability to predict the effects of alternative courses of action.

Second Session.

In its second session, the Estuary Group considered the issues developed in the first session and drew up a list of actions for dealing with these issues. Two criteria were used: (1) urgency and (2) feasibility for early effective action. Presented in a quickly-derived order of priority, the recommended actions are:

1. Continue the strong protection of tidal wetlands. Since wetlands laws appear to be under attack and threat of weakening amendment, exceptional effort may be required in the near future.
2. Effectively implement the provisions of Public Law 92-500 and its amendments. Achieving the improvements required by this law would effectively protect all uses and preclude the need for many alternative steps or actions. Commitment is especially urged for a program to assure that Federal, State, and municipal agencies will correct their practices in the management of wastes and storm waters.
3. Cease the use of the upper estuary and its embayments as a sewage lagoon by the use of land application and other useful means. Traditional use of this area as an element in waste treatment has long exceeded the capacity of the system. This has been one of the largest and worst sources of damage. Land placement appears to have potential value far beyond present practices.
4. Provide protection of fresh-water wetlands. Federal oversight and possible use of Federal permits may be necessary.

5. Apply a "no discharge" policy in areas of exceptional ecological significance. Permanent protection of areas for spawning, nursery, shellfish, migratory routes, and other high values is urgently needed. Protection should be comprehensive, including the regulation of discharge from recreational vehicles.

6. Preclude, to the highest degree feasible, the discharge of oil and other deleterious materials into the estuary and its tributaries. Discharges during transport, transfer, and storage of petroleum derivatives have caused serious damage, and the threat is increasing. Navigational control, requirements of design for ship and barge construction and operation, rigorous efforts to prevent loss in transfer or storage, and other steps can prevent waste and injury to the estuary.

7. Achieve the intent of the Potomac Estuary Monitoring Program (PEP) for comprehensive chemical and biological examination and monitoring of the estuary. This program, prepared for the consideration of the Environmental Protection Agency, would provide an excellent and unprecedented basis for wise management with maximum efficiency.

8. Monitor, on an adequate schedule, the major inputs into the estuary. The nature and quantities of material flowing into the estuary should be measured at Little Falls, in each significant tributary, and along the edges. Much of this would or could be included in PEP, and these measurements over time are essential for decisions on management and investment.

9. Identify sites for the exclusion of major public facilities and sites for possible use in the siting of industries and large facilities. The Potomac estuary includes sites with a range of potentials for specific uses. Permanent protection of some for ecological values is important, as is the identification of locations and restraints which would permit such activities without unacceptable damage to the estuary.

10. Improve the documentation of past, present, and potential uses of the estuary. Insufficient data exist on many uses, including recreation, total waste loading, biological harvest, and others. Competent projections have not been made for trends in uses nor for the ultimate capacities of the estuaries for these uses.

11. Improve education about the estuary. The residents of the Potomac River Basin, and even those charged with its management, have limited knowledge of the estuary. Education is needed about the importance of its multiple usage, its condition, its needs, and the cost and benefits of alternatives. The Interstate Commission on the Potomac River Basin has high potential for such educational work and so do other organizations, agencies, and systems.

12. Approve the pilot testing and use where appropriate of alternative methods of treatment of domestic wastes from scattered households and small communities. Insistence on large scale collection systems, big treatment plants, and massive point source

release of effluents should be modified to permit natural treatment and other smaller local processes when they are known or found to be adequate.

13. Improve the efficiency of household consumption and treatment of water. Many currently wasteful uses of domestic water place a massive burden on public efforts to treat and distribute water, to collect, treat, and release sewage. The estuary would benefit from enhanced flow of natural water.

14. Preclude the discharge or placement of sludge from treatment plants into the estuary. Sludge from Dalecarlia and other water treatment plants should be diverted from destructive introduction into the estuary and placed whenever possible into constructive use.

15. Develop improved methods for dealing with land and water resources related to the estuary to involve all appropriate levels of government and Federal, State, and local agencies. The Potomac estuary is especially affected by the difficulties of comprehensive planning and management and by the problems of multiple jurisdictional involvement. Past failures emphasize the need for improvement.

16. Complete the analysis of the potentials and problems of taking fresh water from the estuary. The studies underway by the Corps of Engineers merit full support. It is also essential that analysis of the biological effects of such withdrawal be completed in addition to the hydrological studies.

17. Complete the accounting of the full costs, benefits, and risks involved in the alternatives for the Potomac estuary.

The estuarine region shares with many other areas both the complexity and the urgency of achieving more accurate and complete knowledge of the uses, changes, and limitations of the region. Full accounting must be possible and should be applied. It was further recommended by the Estuary Group that a more deliberate analysis of estuarine issues be conducted, with additional expertise involved. The concept of the Potomac Conference (the development of a stated strategy) is held by the group to be important as a continuing objective, with perhaps the Interstate Commission on the Potomac River Basin offering a useful mechanism, to be used in concert with the sponsors of the Conference and other appropriate interests.

RECREATION DISCUSSION GROUP

LEADERS: John Capper, Maryland Department of Natural Resources
Fred Cutlip, West Virginia, Governors Office of Federal-State Relations
RECORDERS: Mary Kuchta, Jim Nelson, DSP

First Session.

At the outset of its discussion of recreational issues, the Recreation Group agreed that, because of time limitations, the discussion would be confined to the main river, and for this purpose, the river was divided into three sections:

The upper river - above Great Falls

The urban river - from Great Falls to Mount Vernon

The lower river - the bulk of the estuary below Mount Vernon

The discussion was far-ranging, covering not only recreation itself but matters affecting recreation in one way or another, such as land use controls, water quality, and noise pollution (from Washington National Airport). Out of the discussions came three issues, or problem areas, which could be addressed immediately:

1. The imbalance of land use controls on opposite sides of the river. In the Upper River there are apparent conflicts between those jurisdictions having land use regulations and those not having them. After discussion, the group concluded that the reason uncontrolled and undesirable land uses exist is because some local jurisdictions do not view uncontrolled development as either a problem or undesirable.

2. Conflicts between recreational uses of the river. There are a variety of recreation user conflicts that are severe. In 1972,

the Maryland Department of Natural Resources was directed to prepare a study with recommendations on this problem. The study needs to be completed as soon as possible so that public discussions of the issues and solutions can begin. The most evident conflict is between those who use power boats and other users in slackwater areas.

3. Lack of full recreational use of the Urban River. Although the Urban River from Great Falls to Mount Vernon (30 miles) is adequately protected by Federal land ownership of the shoreline, the lands are not developed with adequate facilities for water-oriented recreation. Access to the river from residential areas is inadequate, as well as are transportation corridors which follow the river. An interjurisdictional comprehensive approach to the planning of recreational access and facilities is needed in anticipation of a possibly swimmable Potomac in the urban area.

Second Session.

In its second session, the Recreation Group analyzed the three general issues which it had developed as being especially pertinent to recreation in the Potomac and endorsed action strategies which it considered could be put into effect with little delay. They are:

1. Land use issues and lack of land use controls. The Interstate Commission on the Potomac River Basin can be used as a mechanism, directing, through its Maryland and West Virginia representatives, a letter to the pertinent Regional Planning Councils in

their respective States, requesting them to meet to discuss or define land use issues upstream from Harpers Ferry. This can develop into a permanent means of communication for identifying issues and developing action strategies for dealing with them.

2. Recreation user conflicts. A key action here is the release by the Maryland Department of Natural Resources of the report, "Recreation Use Study of the Potomac River," which will be used as a mechanism for discussion by public workshops and forums concerning recreation user conflicts on the Potomac. This is an internal Maryland issue which should be resolved promptly.

3. Underutilization of the Urban River. Several actions are indicated:

a. In order for public investment in water quality improvement to be utilized to its maximum potential, there must be a related public investment in access to the water for recreation.

b. Recreation uses and needs should be highlighted in all Section 208 planning.

c. The District of Columbia should form an active Recreation and Parks Department which provides a full scope of recreational opportunities in addition to its programming functions and its small, intensive-use recreation areas. In this connection, the National Park Service is urged to develop a comprehensive plan for the use of all its lands in the metropolitan

area, recognizing its responsibility for meeting both local and national needs in the National Capital area. The transfer of unused National Park lands to the District of Columbia Recreation and Parks Department is encouraged as a step toward meeting local needs.

AGRICULTURE AND FORESTRY DISCUSSION GROUP

LEADERS: Bill Corlett, Pennsylvania Bureau of Forestry
Dr. Berkwood Farmer, Virginia Department of Agriculture and Commerce
RECORDER: Jim Burtis, DSP

First Session.

The Agriculture and Forestry Group discussed agricultural and forestry matters in relation to the Potomac River Basin, using Tables 1 and 2 in the Pre-Conference Report as a starting point. Matters which received attention included the role of agriculture in producing sediments which entered the waters of the Potomac system and the continuing tax issue with its effect on long-term agriculture and forest production. It was noted that preferential tax assessments exist in Maryland and that this might be used as a wedge in meeting the objective of agri-preservation.

It was agreed that it is important to concentrate on planned activity and that this requires an interdisciplinary approach in the Potomac area. In this connection, it is considered that mechanisms for desired actions are already in existence, with the Interstate Commission on the Potomac River Basin being possibly the best overall agency. More money and more staff are needed, however, for the effective operation of this agency in this activity.

An action group, or committee, could serve this mechanism in determining the relationship of agricultural, forest, and non-agricultural land uses to pollution problems in the Potomac area. The group could have at least two functions:

1. To coordinate existing technologies for determining the sources, types, and amounts of pollution.
2. To assist planning processes and programs at State levels

that have an impact on the basin and to promote, within the respective States, recommendations for a coordinated, uniform agriculture/forestry policy. In this regard, recommendations might flow to the U.S. Secretary of Agriculture and to the relevant secretaries in the appropriate States.

The group thought that a long-range approach worth considering is the establishment of resource conservation districts in the Potomac area. This would be for long-range planning and action and would grow out of the short-range planning and action outlined above. There are, at present, two constraints. The first is the lack of funds for agricultural and forestry research and for assistance to the farmer in other ways. The second is the lack of "capacity building;" that is, the way resources are allocated and the way decisions are made at the local and state level.

The opinion of the group is that water quality management and land use planning must be considered together. In this, land use is considered the significant key; the way in which land is used will determine, to a very great degree, what happens to our environment. It is necessary to focus more attention on the land in our planning processes.

Second Session.

In its second session, the Agriculture and Forestry Group continued its discussion of the relationship of agricultural and forestry practices to land use and the relationship of land use to water resources management. It was noted, for example, that forests as a land use form are not a pollution problem but, rather, are part of the solution, and that the retention of forests in

proper locations can provide buffers against sediment loading in the Potomac and its tributaries. It was also noted during this discussion that many local owners of large tracts of land do not want any state land use regulations and that any requirements put upon the use of private lands by a State or multi-state jurisdiction would meet with resistance at the local level. It was considered that the smoothest approach to meeting such objections is through remunerating the landowner for his loss of rights.

The group made one general recommendation: that under the sponsorship of the Interstate Commission on the Potomac River Basin, a committee or group be organized to consider matters relating to agriculture and forestry and how these activities relate to other matters of concern in the Potomac River Basin. The group would consider and make recommendations with regard to:

- Economic base
- Buffer zones
- Recreational needs
- Adverse impact of other uses
- Resource data base
- Urgency of recommended actions

The group would be formed of representatives of the several basin States and the District of Columbia. It would call upon, or invite, data input from Soil Conservation Districts, planners, forest managers, agriculture agents, legislators, and other interested persons and organizations. It would act as a general clearinghouse, and members would take recommendations back to their respective States, counties, Soil Conservation Districts, etc., and would use their influence in having the recommendations carried out. In the furthering

of programs and actions recommended by the group, use would be made of service and conservation organizations and any other organization or group interested in the stewardship of our natural resources.

An early project, with the assistance of the ICPRB, could be the acquisition of the McHarg maps and data inventory.

MINERAL EXTRACTION DISCUSSION GROUP

LEADER: Dr. Ken Weaver
Maryland Geological Survey
RECORDER: Mike Giblin, DSP

First Session.

The Mineral Extraction Group discussed the mineral extraction industries in the Potomac area in general, but paid particular attention to the mine drainage problem. The \$10 million bond issue of several years ago, the surcharge on coal, and the \$30 per acre reclamation fee, all actions in the State of Maryland were noted. Unfortunately, there were no members of the group from any other State than Maryland. It was pointed out during the discussions that the really difficult task in mine drainage abatement is the control and treatment of drainage from abandoned deep mines which do not lend themselves to the technique of "daylighting," that is, stripping the cover off the deep mine, removing the remaining coal, and the back filling as is done in reclaiming a normal stripping operation.

Three issues were addressed:

1. The differences between the reclamation laws, regulations, and practices in the Potomac River Basin States. Short-term exchanges of regulatory personnel between the States may help in seeing the problems of others and in the exchange of information.
2. The importance of minerals, particularly energy-related minerals. Policies should be developed that recognize mining as an important industry which should be encouraged within the framework of adequate and effective environmental controls.
3. Conflicts in land use. Not only does mining (and quarrying)

affect other land uses, but the other land uses may preempt potential mineral bearing land and inhibit the extraction of important minerals.

A philosophical discussion centered on whether the necessary funds should be spent on a massive acid mine drainage abatement program or for some other purpose. Questions were asked: Do we really want to spend our limited financial resources in this way? How much can we accomplish? What can we afford?

The first session ended with the point being raised: Although there is still a problem which must be continually worked at, there is a real measure of control over pollution and reclamation in the Basin.

Second Session.

In developing strategies for dealing with the mineral extraction processes in the Potomac River Basin, the Mineral Extraction Group reiterated (1) its concern over the environmental effects of mining, particularly coal mining and the mine drainage which results, and (2) its recognition that mining must not only continue but must be allowed to expand in order to meet needs. Two criteria were adopted for making recommendations:

1. There should be an existing structure, or mechanism, for putting the recommendation into effect.
2. It can be put into effect within a reasonable time frame.

Using these criteria, the group recommended that:

1. Federal coal mining legislation be developed to produce uniform standards as related to land and to water quality, with due regard to local, geologic, hydrologic, topographic, biologic, and climatic conditions. States should have an opportunity to

implement the Federal legislation under an approved plan.

2. Relevant State agency staffs for mineral and mineral-related environmental activity be periodically exchanged, on a temporary basis, between the States in the Potomac River Basin.

3. The Corps of Engineers study of acid mine drainage in the North Branch area be accelerated. The recommendations as to cost and benefits should be evaluated carefully before taking specific action.

4. A Federal severance tax on coal to equally minimize and correct the negative impacts of mining throughout the country be considered. The funds generated by this tax could be used to reclaim abandoned mines in the State where the tax is collected. This legislation should provide that the State can impose this tax in lieu of a Federal tax.

5. Additional pilot projects be supported for finding economically and environmentally viable uses of sludge for reclaiming abandoned mines.

6. Additional opportunities be sought for utilizing processed solid wastes in the reclamation and filling of old mines in an economically and environmentally acceptable manner.

7. The feasibility of a mine mouth electric power generating plant, located so that it can use water from Bloomington Lake for cooling, be investigated. One purpose here is to improve water quality by treating the cooling water to neutralize the acid.

The group considers that there is already in existence an adequate State and Federal structure to address these recommendations.

THE POTOMAC CONFERENCE:

A SUMMATION

Mr. Lawrence O. Houstoun, Jr.
Deputy Director
Office of Community Planning and Program Coordination
Department of Housing and Urban Development

Lawrence O. Houstoun, Jr. is a planner with more than twenty years' experience in state and federal government. Prior to his current position as Deputy Director of Community Planning and Program Coordination he served as Director of the Comprehensive Planning Assistance (701) program of the U.S. Department of Housing and Urban Development. Mr. Houstoun teaches urban environmental planning to students enrolled in George Washington University's graduate program in parks and recreation. He is the author of numerous articles on housing, planning, and historic preservation and was editor of Urban Recreation.

This conference, begun in post-election fatigue, has lasted long enough to generate its own exhaustion and its own enthusiasm. Today, I heard a woman sitting near me at this meeting remark to her companion that these are exciting times. I hope we can sustain that interest and hope for the potential for private and public cooperative action in behalf of the Potomac. That's our river out there beyond those windows. I don't know whether I can encourage and sustain a greater sense of collective ownership and responsibility among you or you among your friends, but it is nevertheless the responsibility of all of us to try to do so.

Let me say first how satisfying the response engendered by this conference has been. We've worked hard and the results are impressive. My respect and

appreciation are particularly directed toward Ed Thomas and John Antenucci and their staff people whose patience, perception and foresight more than any other combination of ingredients made this process the success it's been.

I'm going to concentrate on the issues that appeared to apply across the lines of the several work groups and to suggest where we might go from here. Congressman Gude said, "This is a river that cries for help!" I want to remind you of that observation. It's a magnificent resource, long abused and misused. It waters farms, towns and the Nation's Capital and it provides quiet pleasure as well as active recreation for millions of visitors in addition to its own four million. Although it's never burned (as have one or two of our northern industrial rivers), its putrescence adjacent to the Lincoln and the Jefferson Memorials have made it something of a national scandal and a local bad joke. With increased urbanization and affluence, our need for the benefits of this great water course similarly expand while the added urbanization itself limits our abilities to act. Moreover, the prospect of improvements, such as better water quality, will in itself serve to induce more development at the water's edge making regulation even more difficult.

Cities across the nation are beginning to rediscover the urban sections of our rivers as immediate recreation resources. Warehouses are giving way to public parks where farsighted planning and acquisition has occurred. In Washington, we have the potential of developing a bathing beach near the Stadium Metro Station that could serve perhaps 50 times the number who each day crowd into the district swimming pools. These problems are great, but the opportunities are equally so, and who knows better than all of you who worked so hard at this conference?"

EPA Regional Administrator Snyder warned that the present means of waste water treatment are excessively costly--in energy as well as in money. He suggested that scattered site waste treatment may be most effective in the Washington area; I suspect that this would produce more rational development patterns as well. Interior Deputy Assistant Secretary Wheeler stressed the threat of unregulated development along the Potomac shores, reporting that 30 high density recreation or other developments are planned or are underway now. These are principally in the areas with the cleanest, most swimmable water, about two hours from the centers of Washington and Baltimore. He urged greater use of various means of controlling development that cost less than outright purchase, including scenic and other easements. The Upper Potomac, he warned, is a limited resource not suited for great masses of people.

In work groups, we heard proposals for the Interstate Commission on the Potomac River Basin to expand its public education work. With respect to the states and counties where greater regulation is needed, we heard the suggestion that state and federal aid be used as incentives to overcome inertia or to offset traditional resistance. We heard Ian McHarg describe a process for planning, both scientifically and with nature. We had the advantage of the world-wide and historic perspective of Dr. Wolman. But most of all, we had the special insights, knowledge, and interest of each participant which has percolated throughout the conference.

Despite the problems, we have a great deal going for us. We have a score of new tools. Both EPA and the Corps are monitoring the Potomac, we discovered, and one hopes this proceeds in a complementary fashion. In this monitoring, there is the potential for making periodic, public reports on some important

elements of the quality of life in the basin. We should also simultaneously report on other trends including the availability of and accessibility to recreation land and water, recreation demand, air and noise pollution, as well as on flood potential, and water supply, demand and quality. If we could bring these facts periodically to the attention of the public, the press, the academic community and the scores and scores of responsible governments and agencies, we could better sensitize these constituencies and prod the responsible bodies into necessary public action. I think the educational mission is a fundamental one.

Another new tool and perhaps the most important to an action-oriented conference is the expanded Corps of Engineers' Section 404 permitting requirements. A report on the control by the Corps of the abuses by the Jellystone Park development (which had previously been approved by various jurisdictions) was, in my view, the most important single case example heard in the two-day period. If state and local governments are unwilling to apply existing enforcement tools or to seek other authorizations, the federal regulator of last resort will doubtless become the Corps. That permitting, however, should become responsive to basin-wide plans and policies, a modification of procedures which I believe could be negotiated.

We have a lot of important existing tools as well. The most impressive of these were McHarg's detailed land use maps which, while they require some updating, nevertheless compose the essential information base for any basin-wide planning. One is inclined to wonder, as I guess one of the work groups did, why they are in Philadelphia instead of Bethesda. Another existing tool is the regulatory power that Maryland--the State which has taken the most

initiative thus far and for which it is to be commended--can apply to the River's main course. It appears that much more could be done by the Department of Natural Resources to influence development on the south shore because of the degree in which second home tracts are dependent upon the river for their sales value.

There are also some new values working for us now. There's a greater concern and a broader public support for preserving natural areas, especially those that can be reached without the use of a car. Incidentally, a good deal of the upper Potomac Basin is now accessible by Amtrak, although this resource has not been integrated into recreation opportunities. Energy conservation and a concern for physical and individual well-being has expanded hiking, biking, camping, non-power boating and similar activities to levels thought impossible by recreation planners as recently as five years ago.

We can be encouraged because the overall condition of the Potomac itself in terms of quality has presently stabilized, according to Regional Administrator Snyder. Moreover, the prospects of using treated water from the estuary, if feasible, would reduce pressure to produce more water from the upper river for community use. And, as has been mentioned several times, the interest expressed by President-elect Carter in this conference should be encouraging to all of us. Governor Carter was active in preserving and improving the use of two major rivers in Georgia, including the portion of the Chatahoochee which passes through Atlanta. On the first page of his autobiography, the President-elect lists himself as a former governor, a businessman, an engineer, a farmer, a naval officer, a planner, a conservationist and a canoeist. Now if that doesn't suggest an identity of interest with this conference, I don't know one.

On the other hand, the situation is also worsening in several respects.

Deputy Assistant Secretary Wheeler warned that recreation type developments being spawned along the Potomac shores limit public access and add to power boat congestion, noise and pollution. The present willingness of state and sub-state jurisdictions to regulate this recreation development appears to be close to nil.

The potential for serious floods clearly increases with poorly planned and unregulated residential and commercial development. There is a question of how frequently hundred year floods have to occur in a single decade before local governments will adopt known preventive measures. It is not only population growth which endangers the Potomac, it is the affluence which expands the proportion of families with second and third cars, second homes, more waste to dispose of, and more time to use or misuse our natural resources. Despite certain sagging economic indicators, it is reasonable to forecast more of this.

It is possible, nevertheless, to accommodate vastly more people and to also have better water quality, fewer floods, and more recreation use if we behave properly. The issue is less how much we do, than it is how we do it. Unregulated use of the Potomac is the destructive heritage handed down to us from our settler forebearers more than 200 years ago, one that is completely inconsistent with today's urban realities. An unwillingness to regulate is to concede that things will not improve; let that simple fact be faced. Congressman Gude referred to the "dangerous" quality of the Potomac in history and he and McHarg reminded us that in recent times the most dangerous element is man. Among the principal dangers associated with today's river are the floods. In the Frederick area this condition has been worsened by allowing unregulated development of shopping centers with their attendant parking lots in areas which

should be enabled to absorb heavy rains. Another of today's dangers is the unregulated developer who wants to sell a piece of the public domain--access to the river--while he fires up the explosive mixture of local government sovereignty and personal profit.

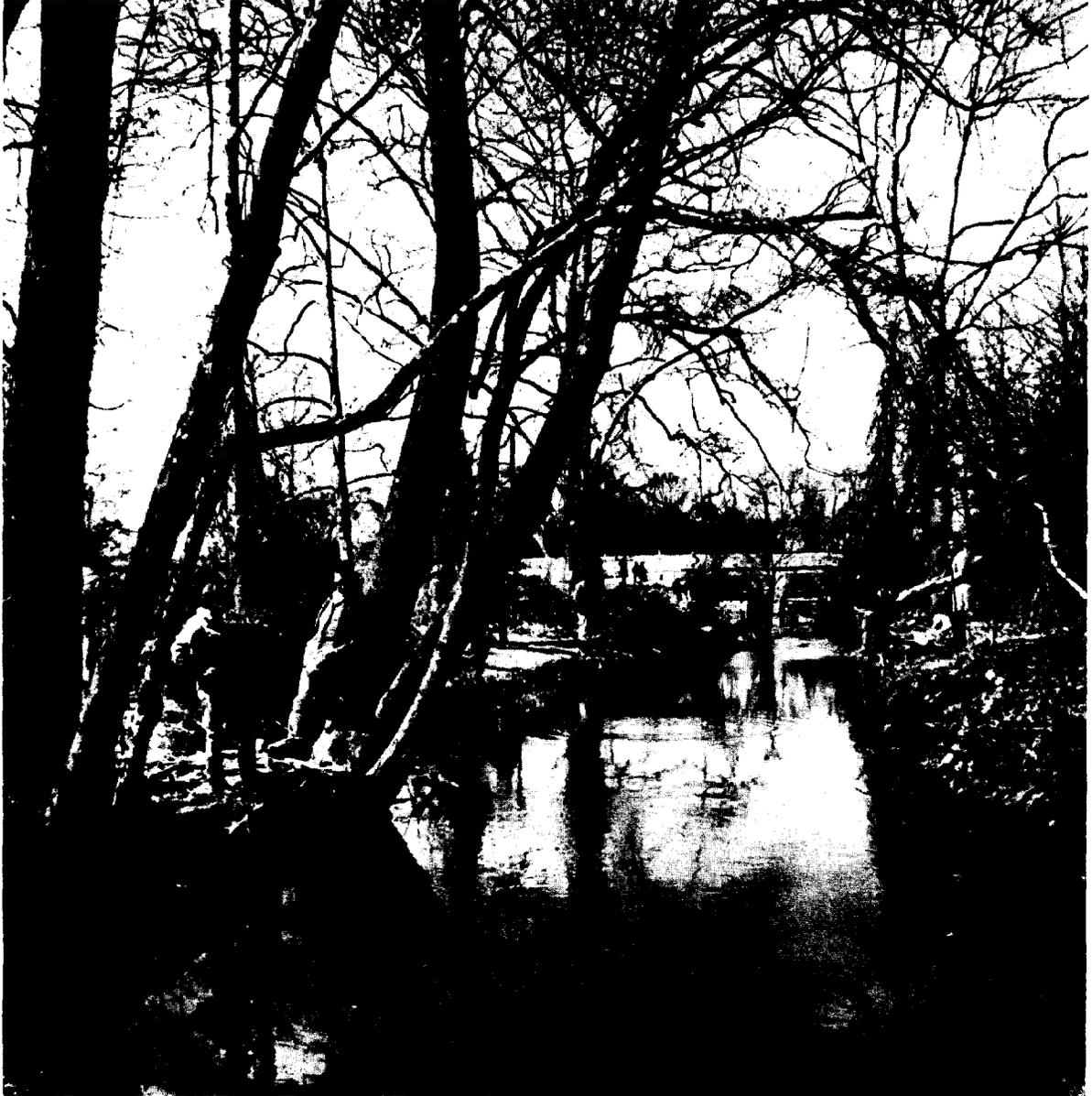
River basins require integrated planning and development, so dependent are we on water for a variety of essential functions. I heard less discussion at the conference of the need to transcend boundaries in planning than I believe will prove to be necessary. If we need any conformation of our problem, the failure to develop a basin-wide compact thus far will suffice. Obviously, there is a greater potential for pleasing voters by concentrating on issues which coincide with present boundaries than it is to deal with issues whose interest groups are divided by jurisdictional lines. This is a limitation of representative government with which we must necessarily deal.

Planning and development which concentrates on only a single community area or state's need ignores the caution of Ambassador Moynihan "that, in the end, everything is related to everything else." Unconsidered initiatives in one sphere of development force actions in another and so on and so on. As Representative Harris insisted we must have the capacity to plan and develop on the basis of assumptions and policies that are common to the entire basin. I think that's our major lesson. As things stand today, virtually all of the forces of government divide us and thereby render almost impossible any major improvements.

Clearly we must construct a strong basin-wide policy development instrument, a unified structure for cooperative intergovernmental planning. We must do this not to exclude the many jurisdictions, but to involve them.

What does a good conference produce? Hopefully, it yields a stronger sense of direction, a better sense of our individual potential for taking action, a renewed determination to act and perhaps, through the contacts made, alliances for technical and political action. If nothing else comes from this 1976 Potomac Conference, I hope it will be the formation of a new and continuing citizen mechanism for monitoring, advocating and implementing in behalf of better opportunities for those who share the common interest in and dependency on the River and its tributaries. Certainly, formation of a strong basin-wide structure should be a high priority of such an organization. I hope myself that Representative Gude--a man singularly well qualified by his skills, his associations, his reputation and his interests--will help organize and lead such a citizen organization. Such a citizen alliance is necessary to work with and if necessary to prod those of us in government into action.

The conclusion of this conference, therefore, is properly viewed as a new beginning. Conditions are not so bad that they are hopeless; the potential for improvement is enormous. The prospects for greater federal leadership is favorable and the interest on the part of the states and sub-state entities as suggested by their participation in this conference provides grounds for optimism. Whether or not the time that has been spent thus far has been warranted will be determined by the degree to which each of us invests even more time and more effort. In short, a better Potomac is up to us.



SPEECHES

WELCOME AND CONFERENCE OBJECTIVES

The Honorable Vladimir Wahbe
Secretary of State Planning
Maryland Department of State Planning

Mr. Vladimir A. Wahbe was appointed as Maryland's first Secretary of the Department of State Planning effective July 1, 1969. He had been appointed to his prior position as Director of the State Planning Department in October, 1968. Prior to this, Mr. Wahbe served as the Governor's Staff Assistant for Urban Affairs and Natural Resources and has had extensive experience in inter-departmental and intergovernmental relations. From February 1962, until February, 1967, he worked for Baltimore County as the Director of the Redevelopment and Rehabilitation Commission and also served as Technical Assistant to the Director of Public Works. Mr. Wahbe also served as Principal City Planner for the Baltimore Urban Renewal and Housing Agency from January, 1959, to February, 1962. He has also held the positions of City Engineer of Damascus and Assistant City Engineer of Jerusalem. Mr. Wahbe is a registered Professional Engineer, a Fellow of the American Society of Civil Engineers, and a Member of the American Institute of Planners.

Ladies and Gentlemen, good morning to you all, and a very warm welcome to The Potomac Conference. Though to some of you, an awareness of the Conference has come only recently, it has a history that is both long and promising. It is history that evolved from concerned citizens and a realization that Potomac problems are becoming more numerous and complex despite attempts to the contrary. It is a history that involved, from its conception, individuals and representatives from the federal government, the States and the District of Columbia, from local governments and organizations. The open and candid parti-

icipation of those individuals underscores its promise. There are indeed many physical, ecological, economic and institutional problems, but the attitude of those of you previously involved has been positive, constructive, and promising.

But why a Conference? Hasn't there been enough said - and perhaps too little done? Many of you probably share these thoughts. We've had the same concerns. But looking back at what has been proposed for the Potomac, and those actions which have been delayed or set aside, the most commonly cited reason has been the lack of communication. This fact has been substantiated in the proceedings leading to this Conference. Common problems, problems affecting every discipline which has participated to date, include:

- 1) Coordination: Between programs and actions of various jurisdictions and levels of government.
- 2) Education: The need to promote an understanding of Potomac values and issues among citizens and elected officials.
- 3) A Basin-Wide Conservation and Growth Management Policy: To provide for a future of balanced growth and conservation in a manner that is sensitive to the physical, economic, social and environmental conditions.
- 4) Need to create a "Potomac River Constituency": A coalition of varied interests motivated to guide and monitor in a comprehensive manner the plans and programs for the River and its Basin.

In each of these, communication is the keystone. So it is through the forum of the Potomac Conference that we are promoting communication. But the Conference - and the communication - are not intended to be the end result.

You know, as well as I, that there are problems in the Basin, critical problems. The Pre-Conference Report documents many of these; I believe each of you has a copy of the Pre-Conference Report. These problems of the Basin can only be solved if all of us agree to do something about it and that is why we are here today.

The Potomac River Basin lies in four States and the District of Columbia. The Basin reaches into nearly 40 counties, contains a large number of cities, towns and villages and is home for 4 million people. It has been endowed with rich and varied resources, both natural and cultural. Its population is increasing, and with it the use of land in the Basin is changing rapidly. Urban areas are expanding. Agricultural and forested areas are being depleted and encroached upon by residential, commercial and industrial development, some of which is located in a haphazard and scattered fashion. The extraction of minerals is becoming more intensified. The demand for recreational opportunities is increasing. More major public facilities, such as electric power generating plants, water purification plants, sewage treatment plants, and transportation routes are needed. Agricultural land must be preserved, and the farmer should not be penalized for his husbandry. Forest land, both large and small holdings, must be managed for its many uses. Our urban areas will and should grow, but not at the expense of our existing urban areas which are deteriorating, nor at the expense of our limited natural resources. Transportation facilities criss-cross the Basin, but greater emphasis on the rehabilitation and revitalization of rail service and other modes of transportation is essential. It is obvious that the use of land for other major public facilities has a similar direct and expanding impact on the Potomac.

Technological solutions, given the money and the manpower, are available, but these problems reach into other areas, such as institutional and political, where solutions are often far from easy. The purpose of the Potomac Conference is to consider and recommend strategies which will lead to an action program for guiding the orderly planning, conservation, and development of the Potomac River Basin's land and water resources. From the communication that can occur at this Potomac Conference, specific actions can result. If we approach the proceedings for the next two days with the same positive attitude that has prevailed in the past, and we take the time to listen as well as to speak, a Potomac Action Strategy can indeed be developed. It is possible to identify who should act and what realistic action should be undertaken. We must go further still and work for a consensus and commitment to carry out those actions.

THE POTOMAC RIVER REVISITED:

THE KEYNOTE SPEECH

Dr. Abel Wolman
Professor Emeritus
The Johns Hopkins University

Dr. Wolman has been associated with the Potomac River for more than 60 years, having first worked on stream pollution studies for the U.S. Public Health Service in 1913. Since then, he has returned to the Potomac many times as a consultant. Dr. Wolman is, or has been, a consultant to various agencies of the Federal government, States and cities across the United States, the United Nations, and many foreign countries. In 1974, the President awarded him the National Medal of Science. An alumnus of the Johns Hopkins University, he has honorary doctorates in engineering, science, humane letters, and laws. He is an Honorary Member of a number of scientific and professional organizations, including the American Society of Civil Engineers and the Franklin Institute. He is a member of 44 such organizations, including the National Academy of Sciences and the National Academy of Engineering.

Mr. Chairman, Ladies and Gentlemen. One of the penalties I am told of growing older is that you then tend to reminisce or you write a book which is generally not very good. I can indicate to you that I have not yet written that book, good or bad, but I have been, in an unguarded moment, inveighed into reminiscing on this occasion. It's a task which I accepted, not with alacrity but with a desire on my own part to revisit the Potomac River, and it is, in fact, that kind of a revisit which I want to share with you. Because out of it, I had hoped, and I believe, that I can indicate to you what the revisiting indicates as to what has been done, more important, what has not been done, and

lastly, if I may quote Don Quixote, what I think is the attainable, even if nobody else thinks so. In this bicentennial year, it shouldn't occasion any surprise to any of you sitting in this room that the majestic Potomac River once again is under detailed scrutiny. This has been its fate, I might remind you after I have reviewed the last 60 some years, for most of its recent 200-year history.

We resume this exercise today with fortunately additional tools of diagnosis, assessment and, hopefully, even therapy. The last 100 years witnessed more detailed examination of this great and, I would say, patient river, due to the advent of the bacteriological era. The famous Theobald Smith, who might register with some of you who are historically minded, initiated this new bacteriological look at the river as far back as 1886, and we are still pursuing that elusive set of bugs. We have, of course, multiplied their number in order to keep us interested forever. For almost a century thereafter, up until yesterday, the Potomac Basin has been in what I call a diagnostic clinic, practically without interruption. The physicians in attendance have represented every Federal, State, and local official agency, and, of course, in the last decade, virtually every citizen group that is vocal enough and militant enough, has also gone into the intensive care unit.

In this century of study, restudy, conference, and legislative hearings, tens of thousands of printed pages, resting upon shelves of libraries, have emerged. All of them have contributed, and I have looked over a great many of them for this purpose, vast amounts of data and, curiously enough, tremendous words of wisdom. I shall emphasize that a little bit later on. The last of these, for the moment, are: The refreshingly realistic and earthy document,

which somebody called "Dollars and Sense," which some of you may have read and which reminded us that although money is supposed to be the root of all evil, it is, in fact, in my own long experience, also the root of all good. In other words, there isn't much we can do without that particular peso, rupee, dollar, or British pound. This, I want to keep emphasizing, perhaps, throughout my particular contribution. This document was added to by the remarkably informative Report on the Northeastern Water Supply for the Washington Metropolitan Area, recently issued. In many, many ways it is a remarkable document, again, for those of you who have had the courage and the time to wade through the multiple appendices which are accompanying it. And the recent Pre-Conference Report prepared by John Starr. All of these give us continuing diagnostic exercises to which the patient has been long exposed, and these diagnoses multiply, not only in detail, but in the spectrum of examination of the patient. He has survived, which is unusual for a patient, all of these diagnostic surveys, and they can be very, very useful to us if we have a mind for it.

Our Chairman has already called attention to one of those things I perhaps ought to forget, that my own entrance into this fascinating clinic dates back to perhaps the first most detailed examination of the river. Novel biological tests were then added, as far as I know for the first time, to the scanning process of determining the ills of this body of water. This was undertaken in 1913 by the U.S. Public Health Service under a Congressional Act of August 14, 1912. I participated, believe it or not, in this early inquiry both in the field and in the laboratory, as a lowly apprentice under the very watchful eyes of three great people: Professor Phelps, Dr. Purdy, and Bill Wells. I call them great, although many people, particularly the young in the audience,

may not have encountered the names, but I do want to mention the fact that all three laid the primary foundation for pretty much everything that we now examine in any patient in this kind of a river metabolism. These are three great people. Purdy, for example, arrived on the deck of the boat on which I was working in those days, for the first time to encounter and to elevate the biological survey of rivers by his technology, which until that time really had not been used by anybody. He established that entire scientific approach, and I guess most people in it today never heard of him, which, in many ways, is regrettable. They all served, of course, under the extremely famous group at the old Hygienic Laboratory, the building of which has been preserved, and I recommend to everybody interested in the Potomac Basin to go down and take a look at it. It sits in the Lower Potomac Basin, a good, old-fashioned brick building in which tremendous advances were made in the collateral fields of public health by equally tremendous people. For over 60 years, I have traversed the river on multiple assignments, and I have contributed, I don't know whether I should be proud of this fact or deny it, to the plethora of printed pages. I didn't add up my own because I was afraid to do so. But there it all is.

We convene today once again to determine where in the world did these deliberations bring us, involving, as I say, millions of manpower hours, millions of dollars. What of these inquiries, perhaps the most extensive, as far as I know, on any river in the United States? What have they told us? What actions or therapies have taken place? Have the deliberations translated into fruitful management, correctives, developments, or beneficial protections? And most important of all, what should we do now? Which, I take it, is the responsibility of this group which meets for the next two days.

My attempts of answer some of these obviously important and relevant questions result from wading through, as I said, myriads of these documents, but by no means all of them. It would be impossible to do this, but I did cover a great many. They should reveal, and, in fact, they do, the seeds for your deliberations in the next two days. Now, in order to do that, I want to diagnose, if I can rapidly, what those past inquiries disclose. I give you a series of them (by no means exhaustive, maybe only exhausting), but it is desirable for us to confront ourselves with them:

(1) From the quality standpoint, the greater part of the river has been improved. (I speak, remember, for a period of over half a century.) In the vicinity of the Capital of the United States, this is unfortunately not the case. Below the District of Columbia, the quality of the river is deteriorating because of massive population growth, and always delayed correction, always. Appearing before a Congressional Committee about two years ago, I was asked by the Chairman: Why is it like that below the Capital of the United States? I, of course, pointed out that the answer is quite simple, that you've all been aware of what's happening to it, you have also been aware of what was needed to correct it, you have also been made aware of the amount of dollars which is necessary in order to do it properly, and you've all gone back completely convinced, and then you cut the appropriations usually by 75 percent. In other words, the diagnosis of that particular situation is not complicated. It is simple in spite of all resolutions to the contrary. From the standpoint of quantity or nature of flow, the past half a century discloses very, very little modification, either natural or man-made. In other words, the number of impoundments, say, or the number of any kind of readjustment of the river, which affect

the quantity, is very, very small.

(2) I hesitate to say this because it annoys many people and it makes us all uncomfortable, but the past studies have been stronger on delineation of problems than on presenting activist solutions. In other words, it is an act which we all participate in. This has been particularly true of many conferences. The technical documents, on the other hand, have frequently recommended specific actions, undertakings which for the most part have been rather generally ignored. Now, I say this advisedly, even with discomfort. I've participated myself, not only in the U.S. but on a global basis, in many such conferences, and going back and rereading them, I'm aghast at my own enthusiasm which ended before I could get to the activist part. In other words, such reports generally, in my own case, have listed all of the possible things that we would like in Utopia, and then we went home.

(3) You can't escape the impression that, for whatever reason, inevitable or obvious therapies are indefinitely postponed or, I have the suspicion, are carefully avoided. Maybe some bright, young, active sociologist someday can be put on this task, perhaps in this very Basin, and try to look beneath the surface to see why many activities were deferred, postponed, buried. For example, in the record over the last 50 years, I find proposals which have been completely buried. Not underground, as you would in the nearest cemetery, but buried in the literature and only revived when some individual, foolish enough like myself, goes back to see what did they say. For example, there is a marvelous report by a Federal agency, many, many years back, on the development of hydroelectric power on the Potomac River. It's a very fascinating one to read in the present day energy crisis with everybody chasing around, not too success-

fully, to find substitutes for oil. Here is a document mapping out the hydroelectric potential of the Potomac, which, of course, has never been developed. Maybe this is the time. I merely whisper this because you are in an energy crisis. You might want to look at this, but I'm sure this will destroy half of your conference if you did.

(4) Innovation is another item I find sought after in the last half of this century. I want to make one point about innovation, not only on the U.S. scene or in the Potomac River Basin scene, but because it's universal. Innovation has been almost synonymous with wisdom and logic, and, very often, it isn't. Many times you struggle for innovation because it's innovation, without stopping to say to yourself: Is this in the record here? That maybe it's silly. Maybe it's not right. Maybe you ought not to do it. It's appeal, of course, in the climate in which we have been over, say, the last 10 to 15 years, is that it's a very appealing concept. Let's do something that nobody ever did, even if it's wrong.

(5) There is one I mention because it's very attractive to me and has many sexual aspects, which I think ought to be introduced into any speech these days. Throughout the record, and I think many of you will recognize it, there are repeated acts of faith by officials and laymen in the recurring declaration, "I love the Potomac," and this is fascinating to me. It is repeated by Congressmen, it is repeated by Federal agencies, it is repeated by individuals, and all I want to say about that, although I'm no particular expert on love affairs, is that the phrase means different things to different people. Each one, of course, is paying court to a different lady love in the Potomac Basin. The inevitable result is a clash of opinion between these lovers and this appears in the record

when this love comes to be translated into realistic action. It turns out that his love and my love are in clash, and they remain in clash incidentally for 10, 15, or 20 years. That simply means that a marriage counselor is necessary.

(6) Few of the documents - and this is equally important - few of the documents recognize that some things are more important than others. Some of you may remember the novel, "1984," in which the phrase occurs that all animals are created equal but some are more equal than others, and, of course, this is the dilemma in the Potomac Basin. The record indicates that all of them are assumed to be equal, and this satisfies all participants but actually does not lead to much creative adjustment. These follow in a certain kind of sequence.

(7) It has been said, for example, that man is essentially a social animal concerned with his fellow man and his similar and competitive problems. This beneficent relationship is almost completely absent in most of the papers, and yet it is a common axiom: Man loves everybody. But what do I find? Neighborliness, trust, cooperation have virtually disappeared. You know, as I reread this in the light of the election, I speak almost as if I'm running for something, but actually, it has disappeared. In its place we find antagonism between the upstream and the downstream - anti-regionalism, which is a phenomenon of the last 10 to 15 years in this country, both within the region and between the regions themselves. Where it does exist historically, it's very fascinating to know that there are many efforts to destroy it. This is a psychological phenomenon with which many of you will have to deal now and for a long time to come. This is true, not only in the Potomac River Basin but throughout the entire United States, and, I might even add, in the rest of the world.

I've been working, as some of you may know, in the Calcutta region for, I guess now, some 16 years or so, in the creation of a vast metropolitan region, serving some eight and a half million people. It was created with a great deal of difficulty and celebrated on Gandhi's birthday. Then the Communist party took over the West Bengal province, and I got a wire saying that the whole thing is held in abeyance because regionalism is anti-Democratic - this, from the Communist party. So, we have this dilemma, and there are many, many reasons for it. There is a great deal of feeling for local autonomy and local responsibility for which I have a tremendous respect. But a number of problems transcend the local area, and somehow or other, we haven't been able to devise an answer to it.

I don't know that I want to continue with this listing. Let me turn to what I consider to be the more important objective in my paper. Namely, are positive therapies possible in this kind of a conference? And I consider that to be a challenge for a very simple reason. The only scrap of Latin that I still retain comes from a speech of Cicero to his Senate, attacking one of his opponents, in which he said (and I don't impose this on you because I'll give you a rapid and free translation quickly), "Quousque tandem abutere patientia nostra," which simply means: "How long are all of you going to abuse my patience?" Actually, perhaps that ought to be posted in the conference room in large letters, because essentially what I want to talk to you about now are a series of possible suggestions as to what the conference might do. I say this with a great deal of care and very guardedly.

(1) Can you agree on a severely limited list of undertakings of the highest priority for the people in the Basin? This, you will recognize, is a

hope that comes out of the fact that you have never done it before. You have wandered around it and through it, but I'm asking this, knowing that it won't be easy because it will escape from the familiar and entrancing indulgence of listing dozens of projects and problems, everyone of which may be good, everyone of which will satisfy the individual taste. But it is doubtful that you can do them all in the universe in which we live. I have said, for example, at many international meetings: "For God's sake, don't publish a resolution, because that satisfies everybody and doesn't do anything." Because everybody then goes home, saying that we did approve of improved water supply, we approved of improved waste water handling, we approved of better forestation, and so on, and so on. Everybody signs it with great joy, but nobody implements it.

(2) Can you confront yourself with what that would cost to do in dollars, if possible? If not in dollars, at least in some manifestation of the units which would be required, reminding you always that this is a priority list, not a catalogue.

(3) Can you look at the list of past policy decisions, of which there are a great many, but not so terribly many of high importance, and say to yourself: How many of those need to be revised because of fundamental change in one direction or another? I have listed some seven or eight of them - a list by no means exhaustive, but let me share with you a couple of them. One, which I'm sure will be understood promptly by many of you is the decision to restrict the expansion of the Blue Plains Waste Water Treatment Plant to its present site, resulting in a whole series of "upside-down" technological, fiscal, and environmental changes, many of which turn out to be incredibly difficult, costly, and perhaps even undesirable. Is that a decision that has to stay that

way? That is all I'm asking. Now, you may get into such a battle you decide its easier to let it stay that way then it is to say: Maybe we ought to change it. A second, which is bound up with it, is to exclude from the expansion the land adjacent to it. Again, this is a difficulty between a national Federal agency and a local group of individuals interested in the same problem.

There are others, that I have listed here, which you could look at at your leisure. It appears now, increasingly, that some impoundment in the Potomac River Basin will be needed. I raise the question with you: Is it sensible to keep deferring a decision on where, how much, at what cost, and what values you get out of it? When you concentrate on the estuary potential for water supply, which is underway in a leisurely fashion, I sometimes get the feeling that you are using that slow motion operation as a blind to avoid coming to grips with any other addition to the Basin's hydraulic or hydrologic undertaking. I merely say to you: Look at that and see whether that isn't really what you slipped into, because, again, the estuarine development, which has many, many values as well as some disabilities, is slow. Now we are already confronted with the fact that it is going to take a number of years. Do you defer all action until that is resolved, to demonstrate that you can do it? The question is, would you need anything else and what is that anything else?

Another problem is sediment. The papers which I have reviewed all refer to the sediment problem. It's one of the very important problems in the Basin. May I suggest a hard look at it. Alternative approaches for control of this very important problem should be taken by this conference. Can we stop it at the source or is that proving too slow, obviously too difficult? Should we catch it somewhere, somehow? Or should we remove it where it has been deposited

to the disadvantage of the lower part of the Basin?

I leave with you: What measures can we take to reconcile upstream and downstream antagonisms? In that one sentence, you have perhaps the whole history of the last 60 years. And I say to you: "Well, now, you can make another milestone in history by confronting yourself with that issue?" I'll come back to it in a moment.

What kind of an institutional structure is now indicated? Remember why we sit today on November 4. Because all of the other proposals, as of today, have evaporated. And I say, here's a conference sitting on this very important question, and I cannot resist emphasizing the fact that if you come forward with my first series of a priority list, rigidly selected, a dollar list, a new look at some of the earlier decisions, you are still left with the central question, which is a universal question. No matter what proposals one has, you have to find a mechanism by which to activate them, and that mechanism isn't here. What ought it to be? I think you might, of course, have a simple recourse and say it ought to be what we didn't do. Well that, I think, would take us on another ten-year road with no visible destination, and I'm hoping that you could have, let's say, a destination, not Utopian, not perfect, temporary in its character - but by temporary, I mean maybe for the next 50 years - and move in that direction.

The Basin problems, in addition, rest for their resolution on a parallel counterpart to the machinery or institutional mechanism, and that is some kind of resolution within the Federal government and between the Federal government and the States and local communities on a quid pro quo, which we would hope would be smoother, easier, and more rapid than it has been in the past. I hold

no brief for the elimination of governmental services. To my mind, that is silly. We are a big country. We need the best of its technology. We need the bureaucracy that has to run it. My only point here is: Can we work out a machinery, paralleling the Basin machinery or parts of the Basin machinery, which would be able to do the task more rapidly, more smoothly, and with greater success than I can report to you today after 60 years? Thank you.

THE CORPS OF ENGINEERS AND THE POTOMAC BASIN

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Colonel McManus came to the Baltimore District following a tour of duty with the American Battle Monuments Commission in Europe. He has also served in Vietnam and Bolivia. Colonel McManus was graduated from the U.S. Military Academy at West Point and holds a Master of Science degree from Purdue University. Prior to his present assignment as Deputy District Engineer for Civil Works, with overall responsibility for the Civil Works program of the Baltimore District including the work of the Corps of Engineers in the Potomac River Basin, he served as District Comptroller and as Chief of Regulatory Functions in the District's Operations Division.

Mr. Chairman, Ladies and Gentlemen. I was so enthralled by the eloquence, humor, and good sense of Dr. Wolman, I couldn't help but think that I'd much prefer to listen to him for another half hour then present the program of the Corps of Engineers. My concern was that you all might feel likewise.

I'll be talking today about the Corps of Engineers activities in the Potomac Basin. The Potomac River flows through a land filled with the names of many legendary places and events: Harpers Ferry, Gettysburg, the C & O Canal, Mt. Vernon, the Nation's Capital, to mention just a few. The river has carried people's commerce, furnished them with food to eat, and supplied them with water to drink. As society has progressed since the early settlers, more and more people have come to depend on the river, both using and abusing its abundant resources. Particularly in this Bicentennial year, it is appro-

priate to examine the future role of a waterway that has had such a prominent role in the Nation's history. Let me see if I can focus that a little better.

The Potomac River drains the eastern slopes of the Appalachian Mountains, the Great Valley west of the Blue Ridge, the rolling hills of the Piedmont, and the coastal plain of the mid-Atlantic region of the United States. Included in its drainage area are almost 15,000 square miles in parts of Virginia, West Virginia, Pennsylvania, Maryland, and the District of Columbia. The population in 1970 was estimated at 3 and 3/4 million and is projected to increase to about 6 1/2 million by the year 2000. Within this large and diverse Basin, the Corps of Engineers has a variety of projects and programs underway which I'll discuss in the following order: First, our continuing authorities. Next, projects under construction. Third, proposed projects. And last, a number of important studies which are underway.

The Corps continuing authorities include operations and maintenance projects which are part of the Corps everyday responsibility in managing the water resources of the Basin, particularly in the tidal portions of the Potomac and Anacostia Rivers. Maintenance dredging, both in the main channels and the smaller tributaries, is part of this Corps function. The removal of drift material, over 9 million pounds in 1975, for example, in the navigable portions of the waterway from Mt. Vernon to Washington, D.C., is also a Corps responsibility. The purpose of both these programs is that you maintain a safe navigable harbor and channel for commercial and recreational boating downstream from the Washington, D.C., area.

In the Nation's Capital, the Corps of Engineers also has the unique task of providing a safe, dependable water supply. Since the mid-1800's, the

Washington Aqueduct has furnished services for collection, treatment, and delivery of water to users in the Washington Metropolitan Area. The water supply system withdraws raw water from the Potomac River, carries it through such National historic monuments as the Cabin John Bridge for treatment and purification at the Dalecarlia and McMillen Water Treatment Plants. From the McMillen and Dalecarlia plants, the finished water is then pumped to various holding reservoirs for distribution to consumers in the District of Columbia, Arlington County, Falls Church, and parts of Fairfax County. Because of the dependence of the Washington Aqueduct on both the quality and quantity of water in the Potomac, the Corps is becoming increasingly involved with water resources development throughout the entire Basin. Several projects and studies are underway to ensure an adequate supply of potable water for the Nation's Capital. I shall discuss these activities in more detail in a few moments.

One further everyday responsibility of the Corps is our regulatory agency role. Regulatory authority stems from two laws: the River Harbor Act of 1899, which basically proscribes the encroachment on or alteration of navigable waters without a Corps of Engineers permit, and the Federal Water Pollution Control Act Amendments of 1972. The purpose of the latter, that is the FWPCA or Public Law 92-500, is to protect the chemical and biological integrity of the Nation's waterways from unregulated discharges, including the discharge of dredged or fill material. The discharge of dredged or fill material is covered in Section 404 of the FWPCA. A subsequent court ruling directed the Corps of Engineers to extend its Section 404 jurisdiction to all waters of the United States, and we are now in the process of complying with this directive with a three-phase program. Phase one, effective in July of 1975, extended the Corps

regulation of disposal of dredged or fill material from the traditional navigable waters to contiguous or adjacent wetlands. Phase two, effective 1 July 1976, has expanded the permit program into primary tributaries of navigable waters of the United States to their headwaters and lakes of five or more acres in size. The implementation of Phase three jurisdiction, tributaries of primary tributaries with an average flow of greater than 5 cubic feet per second, is scheduled for implementation on 1 July 1977. As a last point on our regulatory activities, I'd like to emphasize that all permit applications are brought to the attention of the Federal, State, and local agencies as well as the concerned public by a widely circulated public notice. In addition, of course, public hearings are held on particular applications, as required.

In addition to the continuing activities just described, we are also involved in the construction of two large public works projects in the Potomac Basin. One is Bloomington Dam and Lake, located on the North Branch Potomac River in Garrett County, Maryland, and Mineral County, West Virginia. Although far removed from the Washington area, the Bloomington project will increase the dependable flow in the Potomac throughout its length, adding to the water supply available to the Washington, D.C., area in the summer drought months. Upon completion, the Dam will control a drainage area of 263 square miles, approximately 20 percent of the North Branch Basin. The project will provide 95,000 acre-feet of storage for flood control, water supply, water quality control, and recreation. The low flow releases will increase the dependable water flow downstream from the present 93 cubic feet per second to 305 cubic feet per second. Water quality control will be achieved by releasing stored water from five different levels in the control tower. The first phase of construction

for the Dam and appurtenances, involving the outlet works, has been completed. The remainder of work, building the spillway, the dike embankment, and recreation areas, is just starting. The project is scheduled for operational completion in 1980 and final completion in 1981.

In the Washington, D.C., area the Fourmile Run project is designed to protect the city of Alexandria and parts of Arlington County, Virginia, from the repeated flooding of Fourmile Run. During recent years the rapid urbanization of this small watershed has greatly increased its susceptibility to flooding and associated damages. The project under construction consists of an improved channel, a flood wall protection system, and relocation of two major highway and four railroad bridges. Recreational features will include pedestrian and bike trails as well as active and passive recreational areas. The estimated completion date for all work is 1979.

Moving a little further into the future of the Potomac Basin, there are three Corps projects proposed for construction. All three projects are in some way linked to the Corps responsibility for furnishing a dependable water supply that meets the future demands of the Washington Metropolitan Area. The first project is an emergency estuary water pumping station to be located on the upper reaches of the Potomac. The pumping station will withdraw a maximum of 100 million gallons per day of water from the estuary during emergency low flow conditions in the fresh-water Potomac River. The estuary water will be pumped to the Dalecarlia Treatment Plant and mixed with fresh water for subsequent purification. It is important to note that this project will operate only under emergency conditions, when the flow of the Potomac River is not sufficient to meet the water demand in the Washington, D.C., area. The pumping station

will be constructed mostly below ground level with the superstructure designed to blend in with the surrounding environment. Funds have been appropriated, and the project is scheduled for completion in 1978.

A second project, also associated with the use of the Potomac estuary water, is a pilot estuary water treatment plant authorized in the Water Resources Development Act of 1974. The project authorized for construction is a small scale water treatment plant of one million gallons per day capacity to test the feasibility of using the Potomac estuary as a permanent, supplemental water supply source. In other words, it is a research and development project. Recall that the emergency pumping station, which I talked about previously, uses the uppermost, or the very purest, part of the estuary and uses it only on a temporary basis in times of emergency. On the other hand, the pilot estuary water treatment plant will take water farther downstream - that is, less pure water - and is designed to test the removal of pathogenic organisms, viruses, dissolved organic material, and refractory organics. The pilot plant will be located along the Potomac estuary in the vicinity of Blue Plains. Two years of test data will be obtained from the pilot water treatment plant to determine the technical reliability of the system and to investigate what could be done on a larger scale. The Corps will prepare a report on the two years of testing, and the National Academy of Sciences will review the results and recommendations presented by the Corps. Our report is scheduled for completion in 1982.

The third proposed project for the Basin is Verona Dam and Lake in Augusta County, Virginia. As currently authorized, the project would be located on Middle River, a tributary of the South Fork Shenandoah River, and would include about 10,000 acres of project lands. The project would provide storage for

water supply both for Augusta County and for the Washington, D.C., area, recreation, and stream enhancement. Releases from the reservoir would increase the dependable flow downstream from the dam by about 110 million gallons per day. Work is progressing on the preparation of phase one, advanced engineering design documents, to bridge the gap between the completion of the most recent survey report, that is, the report on which the project was authorized in 1973, and the initiation of phase two, detailed design engineering. Several public workshops have been conducted in the Verona area to acquaint the local officials and interested public with the details of project formulation, and a public meeting is scheduled early in 1977. Phase one, advanced engineering and design work, is scheduled for completion in September of 1977. I would like to emphasize that further congressional authorization is required before construction can be initiated. Assuming a favorable phase one report and a favorable review by Congress, actual construction on the proposed Verona Lake project could begin in 1981, followed by a four- to five-year construction period.

A companion project is Sixes Bridge Dam and Lake on the Monocacy River in Frederick and Carroll Counties, Maryland, and Adams County, Pennsylvania. The project is authorized for phase one advanced engineering and design only. No funds have been appropriated for any work on Sixes Bridge, and because of its controversy, it is very difficult to say if any funds will be appropriated for any work on Sixes Bridge.

Having looked at the proposed projects, I'll now discuss some of the planning activities currently underway by the Corps of Engineers which concern the Potomac Basin. In its planning programs, the Corps is responding to the Nation's growing concern about both quantity and quality of the water for future users

of the River. One of the planning programs aimed primarily at improving water quality is the North Branch Potomac River Acid Mine Drainage Study. Acid mine drainage from both operating and abandoned mines is a serious pollution problem in the North Branch. The streams are sometimes unfit for municipal and industrial uses. Fish and wildlife habitats are destroyed, and aesthetic values are degraded because of red and yellow discolorations. This study investigates drainage from abandoned mines only, because the States and EPA have regulatory programs to curb acid discharges from active operations. The study began in 1975 and is being accomplished in two parts. Part one will determine the extent and magnitude of the abandoned mine drainage problem. Then, upon completion of part one, the information developed will be used to formulate and evaluate alternative abatement plans for part two. Implementation of abatement measures identified in the acid mine drainage study would help to improve the water quality of the lake impounded by Bloomington Dam and result in a whole host of other positive impacts.

One of our planning efforts aimed at a comprehensive investigation of a total water resource is the study of Chesapeake Bay and its sub-estuaries. As such, the study includes the tidal portions of the Potomac River upstream to Little Falls above Washington, D.C. Problems related to navigation, fisheries, flood control, control of noxious weeds, water pollution, water quality control, beach erosion, and sedimentation are being investigated. The first phase of the study determined the present conditions and uses of the Bay. The results are documented in the Existing Conditions Report. Work is now proceeding on the second phase which projects the future conditions of the Bay's resources to the year 2000. The major tool to be used in the study is 9-acre hydraulic

model just completed at Matapeake, Maryland. The model will have the capability to monitor parameters such as temperature, sedimentation, current velocity and direction, tidal elevation, and salinity. In the Potomac estuary, for example, the hydraulic model could be used to determine the following: the optimum location of intakes for any large scale estuary treatment plant, the effect of waste water discharges on estuarine water quality, the impact of various low flow discharges from the fresh-water section of the Potomac, and the movement of the salt-water wedge within the estuary during conditions of low flow. Actual tests on the model are scheduled to commence in mid-1977, following the year's verification now in progress.

The Washington Metropolitan Area and the entire Potomac Basin were also the subject of a recent special investigation conducted as part of the Northeastern United States Water Supply (News) Study, initiated response to the 1960's drought. The News Study covered 13 northeastern states from Maine through Virginia. During the study, the Washington Metropolitan Area was identified as being one of three areas with the most critical water supply problems. Alternative solutions identified by the News Study were grouped according to proven and unproven technologies. The alternatives were then formulated into phase one programs for early action and phase two programs for long-range consideration. Not surprisingly, the proven technologies were found to have the greatest potential for implementation at an early date to solve the immediate water supply problems. A staff report documenting all of the News work has been written is now available for public distribution. This summary report is titled, "Critical Choices for Critical Years," and formed the basis of the public meeting held in March of 1976, which concluded the News work in

the Washington, D.C., area.

This same series of public meetings, held in late March of 1976, also initiated the Metropolitan Washington Area Water Supply Study, which was authorized by Public Law 93-251. This latest study will pick up where News ended by furnishing the detailed design of the short-range plan proposed by News and by supplying both preliminary and detailed designs of long-range alternatives. It is scheduled for completion in 1983 so that the study may incorporate the results of the Bay model testing for the Potomac River and the results of the pilot estuary water treatment plant testing program. The study area includes the District of Columbia; Montgomery, Prince George's, and Charles Counties in Maryland; and Arlington, Fairfax, Loudoun, and Prince William Counties in Virginia. The fundamental problem to be solved is a familiar one - the serious potential water shortage now facing the Washington Metropolitan Area, which can only grow worse as consumption increases in the coming years. Existing supply and demand records for the Washington, D.C. area indicate that the peak demand on the Potomac River has already exceeded the minimum flow of record. Fortunately, these two events have not yet occurred simultaneously. Projected demand data, based on Council of Governments figures, indicate that by the year 2020 there could be a monthly deficit in the Metropolitan Washington Area of more than 200 million gallons per day in the critical month of August. The data assume both Bloomington and Verona will be supplying water to the Washington area. One-day deficits would be even higher. Problems of this magnitude, of course, indicate a need for careful planning of the Potomac Basin's water resources. To solve these problems, a wide range of alternatives will be considered. These alternatives will range all the way from construction solutions.

such as upstream reservoirs, which are aimed at increasing the supply of water, to administrative solutions, such as water pricing and conservation education aimed at reducing the demand for water. The most important aspect in the direction of the study will be the formulation of programs which are acceptable to the decision-makers and which can be implemented with the greatest efficiency and effectiveness for solving the Washington Metropolitan Area critical water supply problems. This study must be the last, as the Washington Metropolitan Area water supply problems have been studied enough, and decisions are already overdue.

My summary of the Corps of Engineers projects and programs of the Potomac Basin has been brief, but I hope that I have imparted some understanding of the types of activities in which the Corps of Engineers is involved. In addition to our traditional programs of navigation and flood control, we are also becoming increasingly involved with other facets of the total water resource, due to Congressional mandates, involving recreation, water supply, stream enhancement, and water quality. The integration of the Corps programs with those of other Federal, State, and local activities is our continuing interest and will hopefully assist in ensuring that the Potomac River and its associated resources continue to serve the region as well in the future as they have in the past.

Thank you.

THE ENVIRONMENTAL PROTECTION AGENCY AND THE POTOMAC BASIN

Mr. Daniel J. Snyder, III
Regional Administrator, Region III
Environmental Protection Agency

In his assignment as Regional Administrator for Region III, Mr. Snyder is responsible for the work of the Environmental Protection Agency in the Middle Atlantic States. He is also Chairman of the Federal Regional Council for Region III which includes the States of Pennsylvania, Maryland, Delaware, Virginia, and West Virginia and the District of Columbia. Mr. Snyder has also served as Acting Deputy Regional Administrator and as Regional Counsel. Prior to joining the Environmental Protection Agency, he was Deputy Minority Counsel for the U.S. Senate Judiciary Committee.

Thank you, Mr. Secretary. I'd like to discuss briefly some of the activities of the Environmental Protection Agency that you are all pretty much aware of and then discuss in much more detail, two roles of the agency that often don't receive a great deal of public or citizen comment.

First, with respect to those activities that you are familiar with. The Environmental Protection Agency is a regulatory agency. We have regulatory authority under the Federal Water Pollution Control Act, the Safe Drinking Water Act, The Clean Air Act, the recently passed Toxic Substances Control Act, some minor regulatory authority under the Noise Legislation, the Federal Insecticide, Fungicide and Rodenticide Act, and also some limited authority under the recently passed Amendments to the Congressional Solid Waste Act.

The main regulatory authority that I think concerns most of you here, is the Waste Water Discharge Permit Program, the issuance of permits, containing

compliance schedules and specific treatment requirements, to various industrial and municipal dischargers into the Potomac River in the States of West Virginia, Maryland, and Virginia. Under the provisions of this Act, the permit issuing role has been delegated to the States of Maryland and Virginia and EPA's major role with respect to these States is a sort of back-up enforcement role. We are also now moving into the implementation stage of the Safe Drinking Water Act with the publication of standards that have to be met in order to guarantee that a safe and healthful level of drinking water is being supplied from all of the major, both public and private, drinking water supplies that serve the residents of this region.

The second role that the Environmental Protection Agency has is its role as a grant making agency. Under the Federal Water Pollution Control Act, the Environmental Protection Agency provides 75 percent Federal funding for municipal waste water treatment systems. To give you some idea of the magnitude of this program over the next 16 months, Region Three expects to make grants somewhere in the vicinity of a billion dollars for the construction of waste water treatment systems. The entire national program is now being funded at the rate of approximately 5 billion dollars a year.

EPA also has very considerable planning support and coordination functions. One that most of you are familiar with is the 208 program, which is, really, the first attempt to interrelate, on a massive planning basis, area-wide waste water management concerns with concerns for drinking water quality, for recreation, and for sound land planning management. The Environmental Protection Agency has made a grant to the Metropolitan Washington Council of Governments, totalling 3.5 million dollars to pursue its waste water management planning activities. The major emphasis of this very important 208 study is on the non-point source

pollution problems of the region: the inflow of nutrients, of phosphorous, and of other materials into the estuary from construction sites and from agricultural operations; the upriver pollution problems associated with acid mine drainage; and the area-wide pollution problems associated with some things that are very difficult to get at under the grants program, like the combined sewer or storm run-off problem. All of these major questions are being looked at and hopefully will be addressed by this massive 208 regional waste water management planning effort. The 208 program serves another function, however, and it is a sort of implementation function because it can serve more and more as the focal point for coordinating Federal planning programs that impact on waste water management considerations and also can serve more and more as the focal point for interrelating State, local, and Interstate Commission on the Potomac River Basin efforts in the planning area.

Having briefly summarized the three roles that most of you are most familiar with, I'll like to discuss two roles which often go unnoticed.

The first of these two roles is the scientific and technical support function performed by the agency. We spend a lot of money and a lot of manpower every year maintaining something called the Potomac River Basin Model. This is a computer model into which is inputted the data that are collected on the various monitoring surveys conducted by our Annapolis Laboratory in the Potomac River. The model serves two functions. First of all, it is the means of checking on the patient's health, in Dr. Wolman's words, because the proof of all of the policy decisions, diplomatic negotiations, lawsuits, and everything else that seems to occupy the time of most of the policy makers of this area, is whether or not the Potomac River is actually getting cleaner. If it is not, then most of the efforts and the words have very little effect. So, the Potomac

River Basin Model is a means of determining at any given point in time, how well we're doing and where the trends seem to be heading. Secondly, it is a very important tool for predicting the effect of regulatory and policy decisions with respect to points of location for sewage treatment discharges and, in general, what type of treatment will provide the optimum level of water quality affecting the various critical areas of the Potomac, including the estuary. So the maintenance of the Potomac River Basin Model, certainly not something that has gotten a lot of dramatic attention, is something that is critically important for purposes of determining how we're doing with the Potomac River.

Another item under the role of scientific and technical support goes into basically discovering what is going on out in this very complicated environmental system called the Potomac River, and then using this information and these discoveries to make policy. However, for the last number of years, EPA nationally has devoted considerable resources to studying the effects of toxic substances on the environment and, ultimately, on public health. We have become increasingly concerned with the discharge of toxic substances into the environment and the effect that these substances have on various health problems that are experienced by residents of the region. We have also been concerned nationally with the effect of virus transport from human waste into drinking water. Our Cincinnati Laboratory operation, which contains probably the most sophisticated biological experience available to any Federal agency, has been doing numerous studies in Fairfax County and in other places around the country, is beginning to develop this relationship between viruses as they are transported from human waste, and is finding that these viruses have some effect on drinking water supply.

These two areas are major areas of concern to EPA, and I think to all policy makers and concerned citizens in this region. Certainly, these are two long-range efforts that get very little attention, but which are of tremendous significance from the standpoint of policy decisions that have to be made in this area in the future.

There is one other role that I would like to talk about today, and that is the role of technological development. The Environmental Protection Agency runs a five billion dollar a year grant program in the sewage treatment area, with almost no funds to assess and develop technology. This problem has occurred for two reasons. First, Congress did not provide any major appropriations, and second, the small number of appropriations that Congress did provide have largely been impounded by the Office of Management and Budget. I'll go later into how this has a tremendous impact on everything that we are doing. I could not help but think, in looking at the charts that were presented by Colonel McManus, of the effect that the development of technology can have from a positive point of view on various predictions, because on all charts presented by government agencies, whether by mine or by State agencies or by the Corps of Engineers, you see the need line going like this and you see the various things to meet that need line always seeming to fall considerably short of ever accomplishing the job. But, the development of technology can dramatically change this relationship.

There was a recent decision made by Montgomery County not to permit two major Federal facilities an additional allocation of water supply so that these agencies could pursue their expansion program. This obviously created a very considerable problem for these two agencies because they had received money

to expand their facilities, and the facilities were absolutely essential to the performance of their mission. What these two agencies did was to approach my Regional Office, and we put them into contact with some of the best experts in the country on water conservation. And I am happy to report that these two agencies are now going to be able to expand their existing facilities and to use the same water allocation that they now have, through the implementation of an effective water conservation program using technology which is now available. They are able to dramatically cut down the demand for water that would be used by these facilities. So technological development can have a tremendous impact on "doom and gloom" prophecies of never being able to get from where we are now to where we ought to be 5 or 10 years from now.

In my view, the present method of treating sewage is expensive and highly energy-consumptive. Because of what the Arabs are going to do and the plans that our own energy suppliers have, we can expect that the cost of energy will go up maybe 10 percent next year, maybe another 10 or 15 percent the year after, and will probably double, triple, or even quadruple over the present rates, which we consider to be serious, over the next 20 years or so. Therefore, highly energy-consumptive facilities and means of treating waste water are likely to put an economic strain on even the wealthiest units of local government. What does this mean? Well, for one thing, if we overbuild highly energy-consumptive facilities, we're imposing, from a public policy point of view, a high loss opportunity cost. And we are also providing for distortions in the normal growth patterns in an effort to fill what may be a non-cost effective and overdesign, from the standpoint of capacity, sewage treatment plant. So, we not only have to worry about not having enough capacity, but I think we also have to worry about having too much capacity at any given point in time.

I'd like to discuss a couple of other aspects of this second role, the development and implementation of technology. I think that if I've learned one thing over the past several years it is that the development and implementation of technology do not come without a tremendous struggle. In 1973, the very able group of soil scientists and land application specialists at the Beltsville Agricultural Research Station were to be assigned to other tasks in other parts of the country. This was simply because the U.S. Department of Agriculture was having appropriation and budget allocation problems, and it did not assign a high priority to the work that these specialists were doing in the areas of spray irrigation and the composting of sewage sludge. Our office, on the other hand, perceived that this work was absolutely essential to achieving some cost effectiveness in sewage and sludge management systems that would be applicable not only in this area but, also, in other areas confronted with similar problems. So we took some money out of our annual operating budget, some \$200,000, cut down on government travel, and, basically, were able to keep this program at the Agricultural Research Station alive through 1973 and until a much larger research grant could be made available from EPA in 1974. Now, what does this produce? It has produced, first of all, what we think is a viable low-cost and energy-conserving alternative for the management of sludge from waste water treatment plants. It does not need to be ocean dumped at great cost to the natural resources of our ocean area. It does not need to be incinerated with the high fuel cost sometimes associated with that process. It can be composted, and it can be substituted for chemical base soil conditioners. So, we've moved forward with this composting process, first on an implementation basis at the Beltsville Agricultural

Research Station with a small 50-ton-a-day operation and, hopefully soon, with a 600-ton-a-day operation adjacent to the Blue Plains Sewage Treatment Plant at Oxon Cove. This implementation of a 600-ton-a-day site has not been occurring without its series of problems, but due to the very effective work of Congressman Harris and cooperation between the Department of the Interior and the District of Columbia, this Oxon Cove site for the composting of 600 tons-a-day of District of Columbia sludge will soon become a reality.

On another front with respect to the development of technology, EPA has funded and brought into operation the 40 million gallon land treatment, or spray irrigation plant, at Muskegon, Michigan. The return from the first year of operation are in, and it has exceeded all expectations for effluent quality and cost saving. Study after study by our agency, invented by consultants to the Washington Suburban Sanitary Commission, have demonstrated that scattered site land treatment would work in the Potomac Basin and is the most cost effective means of treating sewage and also providing for the recharge of badly needed groundwater of a quality that makes it highly acceptable for drinking water purposes. Unfortunately, no land treatments in this area are now in the advanced planning stage. We've been more successful in the Philadelphia area where under the guidance of Ian McHarg, the speaker that you will be hearing from later today, and some far-sighted local officials and foundations, we hope soon to have a small but effective spray irrigation facility in the Pennypack watershed area.

There are additional technological developments that can be of considerable assistance in many areas. For example, one thing that our agency is now looking at is an irradiation process for the destruction of pathogens in sewage and sludge, a process which promises to be extremely cost effective for destroying

pathogens and especially rendering compost much more acceptable for even agricultural (food production) purposes. In the areas of technological development, we can also point to some things that are going on with respect to cutting down infiltration and inflow and to water conservation devices that can, and I hope will, make it possible for us to cause the demand line and the supply line to come together at some point instead of one always seeming to lag behind the other. In summary, I talked about two functions of EPA that don't get a lot of attention: the function of scientific and technical support and the function associated with the development of technology. But I hope you will agree, from this brief discussion, that these are two areas that certainly deserve your support. They promise some tremendous benefits for the future and a much better understanding of the interrelationships necessary to make the appropriate public policy decisions with respect to sewage treatment that have to be made in the next 5 to 10 years. Thank you.

THE DEPARTMENT OF INTERIOR AND THE POTOMAC BASIN

Mr. Douglas P. Wheeler
Deputy Assistant Secretary For
Fish, Wildlife and Parks
Department of the Interior

Prior to his assignment as Deputy Assistant Secretary, where he has responsibilities in the administration of the National Park Service, the Bureau of Outdoor Recreation, and the Fish and Wildlife Service, Mr. Wheeler served first as an attorney advisor in the Office of the Legislative Counsel of the Department of the Interior and then as Assistant Legislative Counsel. He has been Deputy Assistant Secretary since November 7, 1972. Mr. Wheeler was graduated from Hamilton College and holds a L.L.B. degree from the Duke University Law School. He has served as a practicing attorney, has been active in the Capitol Hill Restoration Society, and is a Lieutenant in the Judge Advocate General Corps, U.S. Naval Reserve.

Thank you, Secretary Wahbe and ladies and gentlemen. I am privileged to serve in a capacity which involves policy oversight for not only the National Park Service, which has a very deep and strong commitment to the protection of the Potomac River Basin, but the Bureau of Outdoor Recreation and the U.S. Fish and Wildlife Service as well. All three agencies are ably represented here today, and I think that on behalf of the Department and on behalf of those three agencies, we appreciate your invitation to participate.

It is my hope that if you will permit a few minutes to discuss the Department's role in protection of the Potomac River Basin, we might make a somewhat meaningful contribution to the progress of the conference. The Department's interest in the Basin has a 40-year history at least. We, as so many of you,

have long recognized that of the major rivers on the Eastern seaboard, the Potomac is one of the most beautiful and, so far at least, one of the least developed.

As a result of the National Park Service's experience with the C & O Canal since 1938, the Secretary of the Interior has become increasingly concerned about the future of the Potomac Basin. This concern was expressed in a 1965 Presidential message which called for cleaning the waters and protecting the scenic and recreational qualities of the Potomac. In responding to that request, now 11 years ago, a Federal interdepartmental task force, including representation from the other Federal agencies represented here today and a citizen's advisory committee, produced a comprehensive study in the form of a series of reports on the Potomac. I am sure that many of you are familiar with those studies. One of the recommendations was the proposal in 1968 for the establishment of a Potomac National river. This 68,000-acre park would have extended 195 miles from Washington to Cumberland along the main stem of the Potomac. The average width of the park would have been 600 feet on either side of the river. The program was ambitious, extensive, and, it now appears, a bit premature.

In 1969, Secretary Hickle, State and local governments, and a number of concerned citizens supported the creation of the C & O Canal National Historical Park involving some of the same acreage that was proposed by that study group a few years earlier. The 91st Congress, as you all know, created this 20,000-acre park, which places 194 miles of the northern shoreline of the river in public ownership. This park, as its land acquisition program is completed, will insure protection of the great historic resource of the C & O Canal and,

we hope, provide access to and along the Potomac. The Park Service, in the implementation of its acquisition plans, has acquired land for the past four years with an ultimate investment in Federal tax dollars of something in the neighborhood of \$21 million. One of the effects, perhaps unfortunate, of the land acquisition program for the C & O Park has been an increased awareness of the Potomac on the part of the citizens and, more unfortunately, on the part of those who would develop the shoreline not protected within the boundaries of the park. We have seen to date the development or projected development of approximately 30 high density subdivisions which are causing concern to all of us, I'm sure. The aesthetic and recreational values, which are being protected on the northern shore, may be impacted adversely on the southern shore.

I think it is in recognition of this problem that in the last Congress, Congressman Gude and Senators Beall and Mathias introduced legislation to protect the southern shorelines and the islands of the Upper Potomac. This proposal was even more restrictive than those advanced earlier in the mid-sixties. The concept was, as many of you probably know, to control a strip of land along the shoreline. That strip, which averaged 200 feet in width, would either be locally or Federally controlled. The proposal also provided for a modest amount of land for the development of public recreation facilities. It required acquisition of approximately 14,000 acres. When combined with the 20,000-acre C & O Canal Park and 9,000 acres already in public ownership, a total of 43,000 acres would have made up this Potomac River park instead of the 68,000-acre proposal of the 60's. It would, however, have resulted in land acquisition costs of at least \$35 million dollars. As you probably know, the Secretary of the Interior expressed reservation about that proposal, urging instead more complete utili-

zation of existing State and local authorities which could be employed to achieve some of the same objectives at a smaller cost either to those authorities or to the Federal government.

We have since that time continued our pursuit of those alternatives, and I would like for a minute to discuss them with you. We probably should start with the example of the C & O Canal Park itself which, as I mentioned a moment ago, was created by the Congress in 1971 and stretches for 194 miles along the northern shoreline of the river from the District of Columbia to Cumberland. Although the park is 20,000 acres in size, we should point out that it is laced with multiple management. Within the boundaries of the park, there are also two town parks owned by local municipalities, two county parks, two State wildlife refuges, and portions of one State park and one large State forest. State and local government will manage approximately 3,500 acres of the total 20,000 acres. The point that I am attempting to make is that we don't have to talk necessarily about Federal land acquisition in order to protect the shoreline of the Potomac River. Rather, we believe there are tools within the Interior Department and within State and local governments to implement programs which can achieve many of the same goals. Acquisition and development of State and local parks is Federally assisted by approximately 61 programs administered by 29 different agencies. One of the major Federal programs is the Land and Water Conservation Fund administered by our Bureau of Outdoor Recreation.

The Land and Water Fund was established by the Land and Water Conservation Fund Act of 1965 and was amended in September rather significantly to provide \$10.8 billion in matching grants to the States and for Federal land acquisition.

This will increase tremendously the amount of money available to the States of the Potomac River Basin for land acquisition and development. Those of you who know the Land and Water Conservation Fund Program are aware that until this year the authorization for that program was \$300 million annually, split roughly 60 percent in matching grants to the States and 40 percent to the Federal government for its land acquisition programs. That \$300 million ceiling was raised by the Congress and approved by the President in September to \$600 million in 1978, \$750 million in 1979, and \$900 million annually thereafter for 1980 through 1989. Thus, we will have first a two- and then a three-fold increase in the amount of land acquisition and development dollars that will be made available, assuming a capability to match those dollars to the States of the Potomac River Basin. To give you a specific example of the impact of these increases, you ought to recognize that by our current estimates the State of Maryland will receive over this 11-year period \$119 million, the State of Virginia \$124 million, the State of West Virginia \$65 million, and the District of Columbia \$23 million. Those figures, again assuming a capability on the part of the States to match those Federal dollars, result in a total Federal and State investment double the size of the figures I have just given you. We are hopeful that expansion of this fund in so dramatic a way will give State and local governments an incentive to expand their programs as they are related to the Potomac River Basin.

The U.S. Fish and Wildlife Service administers both the Dingle-Johnson and the Pittman-Robertson programs, providing funds to States for land acquisition, research, and development of facilities generally associated with hunting and fishing - certainly, with having to do with wildlife habitat protection. In 1976 alone, funding was made available to the State of Maryland in the amount

of \$740,000, a million and a half to the State of Virginia, and \$890,000 to the State of West Virginia. We know that these programs have also been used to develop numerous facilities in the Potomac River Basin, and we encourage that those funds be used for similar purposes in the future. I should point out that both with respect to Pittman-Robertson and Dingle-Johnson and the Land and Water Conservation Fund, assuming that projects proposed by the States are consistent with comprehensive plans submitted to the Federal government, the State sets the priorities on the expenditure of these funds.

For those of us who are concerned with the Potomac River Basin, certainly it is important that the States are alerted to our concern that priority be given to land acquisition and similar protective devices along the Potomac Basin. The Fairfax County Park Authority and the Northern Virginia Regional Park Authority have acquired park lands along the Potomac from Great Falls to a point 10 miles upstream, opposite the Seneca shoreline, on the Virginia side. This is the kind of commitment to the resources of the Potomac Basin which encourages us at the Department of the Interior to explore alternatives to Federal land acquisition, to suggest, in effect, that there ought to be a partnership recognizing the multiple responsibilities and indeed the multiple authorities of local-state and Federal governments.

Another example of a cost-effective approach alternative, opposed to fee acquisition by the Federal government, is our acquisition for the C & O Canal of 1,600 acres in scenic easements. You know, I am sure, that by using a scenic easement, the private landowner retains both the use and fee ownership of the property. There is no public use of property which has scenic easement control over it unless that is specifically mandated. The owner is able to

develop the land for residential purposes, and the restrictions placed on the property are scenic controls, which simply prohibit certain activities which would intrude on the canal or the river. Scenic easement programs, we believe, could be implemented at the State or local levels with tax incentives for those who dedicate their lands to this type of control. Tax incentives for scenic easements have already been developed in Prince George's County, and similar programs are under consideration by other local governments in the Washington Metropolitan Area. We're also pleased that adjacent to the C & O Canal Park, three counties in the State of Maryland have implemented one form or another of low-density conservation or agricultural zoning along the park boundaries. If this zoning continues and can be strengthened, it will ensure a green sheath concept along the northern shore of the river. Further, Montgomery County is protecting five tributaries to the Potomac in stream valley parks. These parks not only provide protection of the streams, they permit recreational linkages to develop between the communities and the river. The States are likewise analyzing the potential of many of the tributaries to the Potomac as scenic rivers. Goose and Catoctin Creeks in Virginia, the Shenandoah and Cacapon Rivers in West Virginia, and a portion of the Potomac in Allegany County are all currently under study.

Another land use control, which is gaining recognition across the country, is floodplain zoning. This has a three-fold public benefit. First, it preserves valuable agricultural lands in a productive state. Second, it assures the taxpayers that they will not continue to bear the burden of disaster relief for flood victims who have constructed improvements in the floodplain. Third, it preserves the scenic qualities of the river scape. Within the C & O Canal

Park, 85 percent of the lands are within the 100-year floodplain of the Potomac. Most of these lands have been acquired in fee by the National Park Service. The Park Service is, in turn, leasing the agricultural rights back to farmers. This keeps the land in production and preserves the rich variety in the landscape which farming activity produces. We believe that this approach could also be used at the State and local levels.

The U.S. Fish & Wildlife Service, under the provisions of the Fish and Wildlife Coordination Act, is actively participating with the Corps of Engineers in the North Branch Acid Mine Drainage Study, the Washington water supply study, and the Verona Dam proposal, all previously referred to by Colonel McManus. The National Park Service is also working closely with the Corps, with Dan Snyder's people at EPA, and the local municipalities on numerous projects which affect properties under their jurisdiction. With this kind of interagency cooperation, we hope to develop better planning and development efforts in the Basin. This coordination at the early stage of a project should ensure a smoother, faster approval and permit processing at the pre-construction stage of such projects.

In considering the upper river as a recreational resource, there are two main problems which we believe require immediate attention. First, is the control of visitor-use densities in the slack water areas. This problem is being partially controlled through the implementation of construction permits by the Corps of Engineers. We have been working closely with the Corps and the local municipalities in an attempt to ensure that the National Park Service boating facilities, in combination with those in Virginia and West Virginia on the opposite shore, do not overload the abilities of the slack water areas to accom-

modate a safe and meaningful experience for the users of the river surface. We have also been working with the State of Maryland on a recreational use study of the Upper Potomac over the past few years. We hope that this study, which will recommend density controls, will be available for public review in the coming year. Second, public access to the river on the southern shore is rapidly disappearing as more and more second home subdivisions are constructed. I talked a minute or so ago about thirty or more of which we are aware. The access for the general public is being blocked. We encourage State and local governments to acquire lands to ensure future access points adjacent to existing roads at the river's edge and are prepared to assist in providing funds from the Land and Water Conservation Fund Act for this purpose.

We have found in the National Park Service's planning of the Canal Park and in its relationship with the Potomac River, that these resources are fragile, limited, and special indeed. We do not feel that the upper river, from Cumberland to Washington, can provide unlimited recreation for the throngs of urban recreationists who may choose to use the Potomac. The river is a limited resource which cannot accommodate enormous amounts of visitor use without destroying the very reasons that people visit it. Therefore, our development philosophy on the C & O Canal will be one of slow and studied low-density development. We would encourage others with planning and management responsibility to choose the same course of action.

In the upcoming 95th Congress, we will most likely be considering again legislation for the upper Potomac. In our consideration of alternatives to Federal involvement, at least to the extent anticipated by the most recent legislation, we will give very careful attention to the outcome of this

conference. We feel that we should be tailoring any legislative action on the Potomac to meet the needs of the people on the river, in the context of the numerous agency actions which can be taken to assist in the protection of this great river.

I would like to shift for just a minute to what has been called the "urban river," that is, the 30-mile stretch from Great Falls to Mt. Vernon. This is quite different in terms of its use and characteristics from the river as we know it in its transition from the Piedmont Plateau through the Palisades to the Coastal Plain. It is rich in history as well as spectacular in scenery. It is also adjacent to one of the most densely populated metropolitan areas on the Eastern Seaboard. The Interior Department has had a commitment to the preservation of this section of the river for many years. The George Washington Memorial Parkway, which was created by the Capper-Crampton Act of 1930, is managed by the National Park Service. The major purpose of the Capper-Crampton Act was to provide a parkway system in the Nation's Capital and its environs, which would extend from Great Falls to Mt. Vernon on the Virginia shoreline and from Great Falls to Fort Washington along the Maryland shoreline. The primary concept was to protect and preserve the natural scenery along the shores of the Potomac. The roadway that was envisioned by that act has been implemented from the Outer Beltway, Interstate Route 495, for 12 miles to Alexandria and from Alexandria, 9 miles to Mt. Vernon. A 4½-mile section has been constructed in Maryland from just below Great Falls to Chain Bridge. We have no current plans to extend the highway concept beyond that which has already been constructed. We have, however, acquired much of the land upon which the roadway in its extended form was to have been constructed. Our mission and responsibility with

respect to those lands is to protect the natural scenery and the integrity of the Potomac, its Palisades, and the estuarine shoreline throughout this urban portion of the river. As this section of the river's water becomes cleaner with help from EPA and Dan Snyder, we are certain that people will turn to it in increasing numbers for recreation. Thus, we are looking toward development of many of the properties we own along the shoreline in the urban area for river-oriented recreational facilities in the future.

We are currently working with the Corps of Engineers on a demonstration project at Dike Marsh. If the initial experiments prove to be successful, this historic marsh, which was obliterated south of Alexandria by mining for gravel, is to be restored, using dredge spoil from the various channels in the Washington area. We are likewise implementing an extensive trail system which will follow the river. This system is part of a larger metropolitan trail system which has already provided many hours of recreation for the urban residents. It would link with the proposed Potomac Heritage Trail. This trail, which was first identified in Scenic Trails Act of 1968, was recommended to the Congress by the Bureau of Outdoor Recreation in 1974. The trail would extend 875 miles through portions of the Potomac River Basin, and would generally follow the shoreline of the main stem of the Potomac as well as a portion of the South Branch and of the tributaries. The report to the Congress emphasized the need for State and local governments to implement this trail system and leaves the Federal involvement in the project to management of the trail on Federal properties and to providing advice and assistance to State and local governments in acquisition and development of their portion of the trail system. Again, this is another very important use of the Land and Water Conservation Fund.

The Department of the Interior is also extremely concerned about and involved in the estuary of the Potomac. The Mason Neck National Wildlife Refuge, which encompasses 1,100 acres, is an indication to our commitment to the resources of this valuable estuarine area. Due to the active support of citizens' groups in the area, the unique habitat of the bald eagle was protected in 1969. The Northern Virginia Regional Park Authority also manages 550 acres adjacent to the refuge. This produces a total of 1,650 acres in public ownership on Mason Neck. Further, the Bureau of Outdoor Recreation in 1970 produced a draft study on the estuary. This report identified areas of high value for recreation and for fish and wildlife and attempted to resolve conflicts over land use in the Potomac estuary. Although it did not deal specifically or in depth with development proposals at the river front, it did recognize the need for protection of the shoreline and the vast tidal marshes from indiscriminate development. We would further recommend that the States of Maryland and Virginia participate in a cooperative study to identify and evaluate recreation resources along the estuary.

Let me thank you again, Secretary Wahbe, and the State of Maryland for hosting this conference and recommend again that conferences of this type be continued to assure that a strategy can be developed for the Potomac. I want to reemphasize that as the Congress addresses the issues of the Potomac in the 95th Session, we will look very closely at whatever recommendations may develop from this conference as a guide at least to the actions of our agencies in either supporting or recommending modifications to that legislation. I think that we as public employees and citizens, as commissions and friends, must work together toward the development of a program of preservation and protection,

recognizing the potential for use of the Potomac River Basin. It is up to us, through public participation and intergovernmental coordination, to develop public laws and agency regulations which will form the fabric with which we can move forward together with private actions to produce a better quality of the environment for the Potomac Basin and its people. If new Federal laws are needed to protect this great river, then let us develop and support that legislation together. I urge you, however, to consider the existing alternatives which already are possible or available before recommending the seemingly easy but altogether expensive approach of direct Federal government responsibility for acquisition and for a perpetual Federal commitment to the management of large parts of the river basin. Thank you very much.

THE POTOMAC IN PERSPECTIVE

The Honorable Gilbert Gude
U.S. House of Representatives

Mr. Gude has represented the Eighth Congressional District of Maryland since 1967. With the end of his present term in the 94th Congress, he has chosen to retire. Mr. Gude is a member of the House of Representatives Committee on Government Operations, ranking member of the Committee on the District of Columbia, and member of the Select Committee on Aging. As a member of the District of Columbia Committee, he took a prominent part in the week-long hearings on the Potomac in June 1976. Mr. Gude attended the University of Maryland after serving in the Army in the Pacific theater in World War II, graduated from Cornell University and holds a Master of Arts degree in public administration from George Washington University.

Ladies and Gentlemen, faced with the challenges of the Potomac - the pollution, the silting, the conflicting demands for its use, the acid drainage, the requirement of the fishing and the shellfish industry, and also faced with the need for four states and a city government to agree on goals and a course of action, I think that one can't help but be tempted to follow the advice: when in charge, ponder; when in trouble, delegate; and when in doubt, mumble. Dr. Wolman conversely recommended that when faced with such problems, why not make a list of about 50 priority items. Priority items are really good ideas, because the Potomac is a cantankerous issue, and, beyond that, it's dangerous -- it's plumb dangerous.

Now I'm not referring to my trip down the river in August of '75, and the rattlesnake that almost got me, the occasional overturned canoe, or even the

great plunge of Commissioner Adam Foster of the Interstate Commission on the Potomac River Basin. Now, Adam, lightweight as he is, gained such speed on a bike going down a road that he couldn't stop, and he vaulted, like Evel Kneivel -- even better, into the air, wheels spinning and legs still peddling, and then he dropped into the South Branch of the Potomac. He is the only Commissioner to really examine the river in some depth. He's the only Commissioner who'd come with us on the whole trip. He's a great man.

But all of this is really little stuff, because the Potomac has been a river of greater violence than what I've talked about. Some of the Indians who first inhabited these shores, after all, were cannibals. Following Captain John Smith's discovery of the Potomac, many Europeans, besides him, were at one time or another captured by various Indians. Indeed, capture, as risky as it was, and a period of familiarization with the Indian tongues and ways, were almost pre-requisites to a successful career as a fur trader. I'd like to see the government draw up a form for that: Get captured by the Indians for 12 months.

Although, it may seem incredible today, the big problem for some time was pirates. They were a problem up to the Revolutionary War, and these were pretty rough boys. They were two-fisted drinkers, they were brawlers, they were bold robbers, and they really had very little to fear from the weak militia.

Little is recorded about the early colonial times along the river, but it is known that the river front planters, including George Washington, had seines with which they obtained fish for themselves, their servants, and, probably, for sale at such places as Alexandria and St. Mary's. Good Potomac shad were sold on the streets of Annapolis and Baltimore. Washington and many other planters had fine schooners for river commerce. But in addition, some of the

large plantation owners, such as the Lees, had their own ocean-going ships which could come right up to deep water areas on or near the plantations. Fur trading had declined, but the commerce was great in tobacco. And it was this outgoing tobacco that the pirates often hit. Indeed, as soon as a steady flow of tobacco and other products had begun from the Potomac area to England, pirates began to appear near the Virginia capes. After a successful strike, the pirates would take their booty up to Philadelphia, sell it openly at a great profit to merchants who were happy to get a piece of the action, or ship the tobacco themselves -- at a profit -- to England. Then the pirates walked boldly through the streets of the City of Brotherly Love and drank and brawled down at the waterfront dives. Maryland protested to Pennsylvania, but Pennsylvania couldn't have cared less.

Soon tobacco planters and shippers determined it was too risky to let a single ship go alone. So, the ships of several planters and shippers would be organized into a convoy. And sometimes they could even persuade an English warship or two to go along with them. But with the start of the Revolution, English ships were no longer part of the solution, but part of the problem. We read in letters that have survived, and I quote: "Ruin must be the consequence to many of the inhabitants. The enemy have plundered many since I last wrote you." Indeed, in 1781, many planters were forced to leave their homes and move away from the water. They called on Congress for help -- people have been doing that down through the decades -- but they didn't get any then, either.

Finally, they organized a private brigantine of their own called the Ranger, which sailed from Alexandria and engaged in a desperate three-hour battle with two enemy barges. They killed 15 of the English and wounded 34,

with the loss of only one man on the Ranger. But the Ranger was no real match for the many enemy ships in the long run, and the pirates still continued to operate. Two pirates of fame were Waling and Penny, who together led a band that, in one instance, robbed, pillaged, and burned a number of houses in Northumberland County, and attacked a brig loaded with flour for Boston. The Waling and Penny band were black and white men numbering about 100. They apparently operated from bases across the lower bay. One man wrote his sister in England that he had been plundered and robbed by the "privateers acruising the Potomac River, which obliged me to move far from the water. We have had all our warehouses burned by the privateers and many gentlemen's houses on the water. The people along the river, who lost many of their finest young men in battle, were robbed by the British raiders, and were often run from their homes, which were then destroyed. And the small boats of the river men were also destroyed." According to Life on the Potomac River, by Ed Bitesell, whom I'm sure many of you know, a fine historian of St. Mary's County: "So great was the devastation at that beginning, about 1785, over 300 families from St. Mary's, Charles and other southern Maryland counties emigrated to Kentucky to start anew."

The end of the Revolution may have brought an end to open international warfare along the Potomac, but it still didn't end the dispute between the Virginians and the Marylanders. Much of the argument derived from the fact that when Lord Baltimore asked the King to carve him a province from the Virginia territory, the province was designated as being bounded on the south by the Potomac River, to its farthest shore, and to go only so far west as the source of the river, which we so well know as the first fountain of the Potomac.

The latter led Maryland to becoming one of the smaller states with a finite western border, while Virginians considered their area to be a 400-mile strip extending from the Atlantic all the way to the Pacific. These Virginians continue to be greedy down to this day.

Before Maryland would enter the American Confederation, its speaking for itself and the other small states, required that western land reserves be turned over to the Confederation rather than remain in the possession of Virginia and the other big states. Maryland's requirement caused a four-year delay in bringing the states into a formal Confederation. But New York, first, and eventually, Virginia, at least in part, agreed.

As to the river itself, Maryland and Virginia continually wrangled over the commerce on it. The original charter of Lord Baltimore's meant, and still means today, that a boat lying in anchor anywhere in the river, or even tied to a dock that was attached to the Virginia shore, was in Maryland. And as we well know, we even had piers out in the river, with slot machines on them, that were in Maryland. There haven't been any lately, but who knows? The situation is changed only in that Washington - the District of Columbia - has been carved from Maryland, and West Virginia has been carved from the original Virginia.

In those days, however, it meant that a cargo from England to, say, Mount Vernon or Gunston Hall, was subject to Maryland laws and regulations while on the river, as was the cargo leaving the great Virginia plantations, even if its destination was still just in Virginia. Maryland, in 1783, wisely put a tax of 2 percent on all goods imported in British vessels, plus a duty on the ships themselves, based on their tonnage, while Virginia placed taxes on the

British goods themselves, not just on British shipping. Maryland could extract its taxes at its ports, and also anywhere on the Potomac, even though the ship might be headed for a Virginia port. But then, Virginia owned both sides of the mouth of the Chesapeake, and the navigation aids there -- the bouys and the Cape Henry Lighthouse -- were maintained by that State. And, thus, Virginia collected its dues on all vessels going into or out of the bay, whether or not they were leaving or heading to a port in Virginia or Maryland.

Virginians, intent on restricting British goods, sought a meeting with Maryland in 1777. In 1778, one was actually held, but nothing came of it. That sounds familiar. Then Maryland asked for a meeting to discuss the defense of the bay, and a delegate was sent to Richmond. But nothing came of this either, and the wrangles continued, there being nothing in the Articles of Confederation to prevent or resolve them. However, in 1784, a young Virginia politician took advantage of the good will gained by his State's cession of its western lands, to once again seek an agreement on the Potomac. The politician was James Madison. Along with him, the Virginia delegation appointed Edmund Randolph, who was to become Governor, U.S. Attorney General, and also U.S. Secretary of State; Alexander Henderson; and George Mason. Maryland appointed a group that included Samuel Chase, later to be a member of the Supreme Court. With Chase were two other veteran Maryland delegates to the Continental Congress -- Thomas Stone, Washington's friend; Thomas Johnson, plus a State Treasurer.

The group met at Alexandria for four days, and then accepted George Washington's invitation to ship to Mount Vernon, where they worked another four days. Now, Maryland's delegates' first concern was to get rid of the

Virginia tolls taken at the Virginia Capes from Maryland vessels. With that won, they were willing to go on to other subjects. The Virginians, for their part -- this sounds familiar -- had not seen the legislation specifying their narrow role. And this was lucky, for it permitted the discussion that disposed of the tolls, then navigation aids, then piracy, finally, to move on to broader questions of commerce, including an agreement that the States adopt uniform values for foreign currencies. A uniform schedule of tariffs was also agreed upon. The need to have a Mount Vernon Convention was, in itself, a condemnation of the Articles of Confederation, and the meeting became a step toward something better. For when the delegates went beyond tolls and beyond fishing rights on the Potomac, Maryland suggested that a new conference be held, to which Pennsylvania and Delaware would be invited. Later, Virginia passed a resolution calling on the delegates to this meeting to take into consideration the trade of the whole United States. So, from what is sometimes known as "the Alexandria Convention," or is better known as "The Mount Vernon Convention of 1785," came not only a lasting agreement on fishing rights and tariffs and tolls on the river, but the actual germ of the new United States Constitution.

It's no coincidence, then, that 6 of the 8 delegates of the Mount Vernon Convention became delegates to the Constitutional Convention. And so, when you think about it, you meet here in a great and even awesome tradition in a cause that has attracted and involved Presidents, a Supreme Court Justice, Governors, and some of America's most distinguished and skillful negotiators. I do not ask you to rewrite the U.S. Constitution here, but I do ask that you remember the great men and women that you follow.

We've seen our river that's dead from acid draining from western mines --

a stream that has no fish in it in the western reaches, no insects lighting upon it, and no birds. This is a river that really cries for help. You've seen a river scarred by a sprawling trailer camp that mockingly refers to itself as a "park." A river unprotected from industrial development or high-rise apartments. A river where the oysters can't be harvested, because of the pollution they feed upon, and one that's threatened by oil spills, polluted run-off from farms and construction sites. A river from which the American Eagle is already gone, and the osprey is threatened. This river, in its wetlands and its special plants and animals, cries for help.

You can merely ponder -- you find a river in trouble. You can delegate the responsibility. You can mumble out a final report, and you can establish 50 priorities. And this convention, unlike that of Mount Vernon, will certainly be forgotten. But this river -- this Potomac -- is something rare, and it is something beautiful and important. It deserves better than that. It deserves, and should continue, to mirror America's greatness. So, please give it your best, and please help.

**THE INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN
AS A VEHICLE FOR ACCOMPLISHING
POTOMAC-RELATED TASKS**

Mr. Paul W. Eastman
Executive Director
Interstate Commission on the Potomac River Basin

Before taking his present position as Executive Director for the Interstate Commission on the Potomac River Basin, Mr. Eastman served as Director of the Division of Pure Waters in the New York State Department of Environment and Conservation. Prior to that, he served as a project manager with the United Nations Development Program in Poland and with the Federal Water Pollution Control Administration. Mr. Eastman was graduated with a B.S. degree in Civil Engineering from the University of Missouri and with a Masters degree in the Public Administration of Water Resources from Harvard.

The sponsor of the Potomac Conference asked me to discuss the subject of the Interstate Commission on the Potomac River Basin as a vehicle for accomplishing Potomac-related tasks. During the past summer, the Subcommittee on the Environment of the U.S. House of Representatives Committee on the District of Columbia held several days of hearings on the state of the Potomac. At the request of Chairman Herbert Harris, Malcolm Hope, the INCOPOT* Commissioner from the District of Columbia and Chairman of the Commission at that time, presented testimony on INCOPOT's history, activities, and future role, copies

* At the outset of his presentation, Mr. Eastman asked the audience whether they preferred "ICPRB" or "INCOPOT" as an acronym for the Interstate Commission on the Potomac River. By far, most preferred "INCOPOT;" so, he used INCOPOT throughout.

of which are available from us on request. In addition, the testimony will be included in the subcommittee report on the hearings when it is published, and I understand it will be published soon.

Briefly, Congress in 1940 approved the Interstate Compact creating INCOPOT to: (1) collect and interpret data, conduct studies, and issue reports on water quality and pollution; (2) disseminate information to the public in relation to water quality and pollution; and (3) assist in providing a liaison for other agencies in the formulation and coordination of laws, regulations, plans, and programs related solely to water quality and pollution.

In 1970, Congress approved amendments, previously adopted by the Basin States, to the Compact which broadened the scope of INCOPOT's concern from water pollution control only, to include all water and associated land resources conservation, utilization, and development. Another major change was the addition of an Article III. Under this new Article III authority, INCOPOT can establish sections, which may exercise or perform powers or functions vested in the sections by State or Federal laws that go beyond the authority that is vested in INCOPOT within the Compact itself. These sections may be composed of Commissioners of any two or more, but not all, of the signatory States (I also include the District of Columbia as a State when I use that term). And also the Commissioners representing the United States if they wish to participate.

No use of the Article III authority, as described, has been attempted, nor has it been seriously considered until this autumn. The lack of consideration, I think, has been due to the focus by many on efforts to gain approval by the Basin States and the Congress of the proposed Potomac River Basin

Compact, or the alternative Regional Compact, drafted by the Potomac Basin Advisory Committee. However, as a result of meetings in June and August of this year, representatives of the Basin States and others concluded that efforts to pursue either of the proposed new compacts should be dropped, at least for the moment. Furthermore, and particularly relevant to INCOPOT's role as a vehicle to accomplish Potomac-related tasks, the group agreed "to explore to the limit" the utilization of the INCOPOT Article III authority, which I previously described.

Relative to the latter conclusion, INCOPOT, at its September 29, 1976, business meeting, adopted an outline for a study of increased use of INCOPOT which had been drafted by staff members of our Commission and the Potomac Basin Advisory Committee. Approval of the outline, which took place on November 1 by the Advisory Committee, will permit us to proceed with actually carrying out this study of INCOPOT as a vehicle to carry out and accomplish Potomac-related tasks, which is the subject that you're discussing at this Conference. The outline includes some tasks that we think are of very significant concern, and it is attached to these remarks.

Relative to this Conference, I'm looking forward to three very useful outputs: (1) goals ranked by some sort of a priority system based on relative importance; (2) immediate and longer term methods for achievement of the goals which you feel should be emphasized; and (3) perhaps even a start on a third dimension, which could include ultimately an assessment of the status and adequacy of the existing program, to help determine the additional actions to be taken and by whom.

I think it is very important to recognize that many agencies and political

jurisdictions already have Potomac-related programs underway. They will achieve, to some degree at least, many, if not most, of the goals which this Conference, or any other, might conclude are desirable, and in many cases, by methods which we might feel are effective. In other words, many other vehicles exist which should not be duplicated or impaired by any Basin-wide vehicle, INCOPOT or any other. One need not be particularly perceptive to suggest, however, that some better coordination and joint efforts might be in order. INCOPOT has done, and is doing, some of this under its existing authority, but it could do better. Again I refer to Chairman Hope's testimony, which I mentioned previously, for the details.

INCOPOT needs guidance and participatory support, and I repeat "participatory support," from the water agencies in the States and the Federal government, specifically with reference to those responsibilities which the States might wish it to shoulder, either under the Article III authority or under any other authority. "Wherever there is a will, there is a way" is an ancient cliché. But I am confident that ways to accomplish objectives of mutual State concern can be found through INCOPOT, if there is sufficient will among the participants to do so.

Increased Use of Interstate Commission on the Potomac River Basin Study
Outline

At a meeting of state officials on August 30, 1976, it was requested that the Interstate Commission on the Potomac River Basin (ICPRB) and the Governors Advisory Committee on the Potomac River Basin examine the possibility of greater use of ICPRB and its compact for approaches to and solution of interjurisdictional problems of the Basin. This outline sets forth a program of study. The results would be embodied in a report which could be transmitted to the Governors of the states concerned and to such others as might be appropriate.

It is contemplated that a draft report will be available on December 1, 1976. It will include the specific identification of such action as could be taken immediately and will indicate whether it is a final report or whether, because of the short time allowed, further study of any of the items is necessary.

With respect to each of the subjects under item I presented in the outline, the study will include:

1. The necessity and desirability of ICPRB becoming involved to a greater extent than at present.
 2. What ICPRB could do under its existing authority.
 3. What might be done through administrative agreements with state and/or federal agencies.
 4. What could be done by supplemental statutes pursuant to Article III of the ICPRB Compact or otherwise.
 5. What could be done only by amendment of the ICPRB compact.
 6. Whether and to what extent any or all of the above could be performed with existing resources or the extent to which additional resources would be necessary.
- I. Identification and Characterization of Interjurisdictional Problems.

A. Water Supply.

1. Apportionment and allocation of stream flow.
2. Control of diversions and withdrawals.
3. Development and operation of water supply sources.
4. Comprehensive stream flow regulation.

B. Water Quality Management.

1. Water quality data gathering, evaluation and reporting.
2. Water quality standards coordination.
3. Regulatory functions.
4. Enforcement functions.

C. Associated Land Problems.

1. Flood Plain Management.
2. Watershed Management.
3. Shoreline management and access.

D. Water Recreation.

1. Boating.
2. Fishing.
3. Water contact uses.
4. Shoreline recreation.

E. Planning.

1. Comprehensive planning, i.e., Level B planning under 1965 Water Resources Planning Act or Section 208 of Federal Water Pollution Control Act Amendments of 1972.
2. Water quality management planning.
3. Water supply planning.

II. Possible use of Compact as vehicle for making of agreements binding on states and local jurisdictions.

AN ECOLOGICAL PLANNING METHOD

Mr. Ian L. McHarg
Chairman, Department of Landscape Architecture
and Regional Planning
University of Pennsylvania

Mr. McHarg served in the British Army in World War II, rising to the rank of Major. Coming to this country from his native Scotland soon after the war, he attended Harvard University, taking Master degrees in Landscape Architecture and in City Planning. He is now Professor of City Planning in the Graduate School of Fine Arts at the University of Pennsylvania and Chairman of the Department of Landscape Architecture and Regional Planning. He is a partner in the firm of Wallace, McHarg, Roberts and Todd in Philadelphia. Mr. McHarg has engaged in regional planning and ecological studies throughout the United States. He took a major part in a survey of Potomac River Basin problems and opportunities in the mid-1960's. Mr. McHarg is a Fellow of the American Society of Landscape Architects and of the Institute of Landscape Architects and an Honorary Fellow of the Royal Institute of Architects (British).

Thank you very much. I know something about the Potomac, or let's say, I once did. As a modest immigrant from Scotland, a modest immigrant to this country, I was enormously honored when Secretary Udall asked me if I could spare one day of my time a week, for two years, gratuitously in the service of the United States. This is a very small gift to give, compared to the enormous gift I have received and do receive from the United States. So, I did it with a great deal of passion, and I'm glad to say that these efforts contributed actually nothing what so ever to the past, present, or the future destiny of the Potomac River Basin. But as you all know, of course, those things which

are given gratuitously are received without value. So it goes.

The question is: What is it that I have to talk to you about? Well, I'm not sure. It's always a great deal of problem about what justification is there for you sitting here listening to me. I suspect about the only justification is that, by definition, you are involved in factions. Apparently, by description and by assignment, you people are concerned with the extractive industries, or agricultural sediments, or other subjects of one sort or another. And you have all had to have a certain modest frontal lobotomy; you can only address a small part of the brain to that particular problem to which you have been assigned. As I have not been lobotomized (this is not necessarily true by offering the assumption - I have not knowingly been lobotomized), I can offer an assumption that might concern me with the whole system, and because my experience is so distant, I can speak unfettered by any familiarity.

So I propose to talk to you about an ecological planning method, which is the way to salvation and which, of course, is not used in the United States, which believes that laissez faire is, in fact, the way. Anarchy, in fact, is the American tradition. Indeed, it should be institutionalized that every American has the inalienable right to despoil the environment with the greatest possible speed, for the maximum private profit, and the maximum public cost. As we all know, planning is generally due to be slightly Bolshevik. All of you who are addicted to this have somewhat pinkish tendencies, and this constitutes an extraordinary balance. The first thing I have got to say is that the planning, of course, is not even remotely Bolshevik, Capitalist, Socialist, or any other ist at all.

Planning is an absolutely biological imperative, and, as I contemplate my

life, wondering whether or not the processes I'm engaged in are worthwhile, I always reassure myself by examining that unusual organism, the human being - composed, as we all know, of 30 billion, billion cells, all of which originally were entirely autonomous organisms. But still, over two and a half billion years of time, we became joined into more complex organizations, like tissues and organs and organisms, to create one, more or less, integrated organism - a human being. Also, some things happened along the way. We won't bother investigating them, merely just simply observe that an extraordinary dimension of planning, far exceeding that of the capability of the conscious brain, occurs, without the intervention of the conscious brain, to integrate 30 billion, billion cells and produce them indeed from a single fertilized egg - to use this marvelous specialization in terms of tissue, organ, and organism, to have an appeared mechanism, to have this extraordinary device of hematosiis by which the alkalinity of the blood may not depart from its normal value by one billionth of a part. Here we have this extraordinary dimension of planning, which is accomplished within every single organism and within every single human being. So, I would say even those who are most committed to anarchy and those most committed to laissez faire, have to suffer the indignity of being remarkably well planned. It seems to me that this analogy might very well be considered, and they should see that the dimension of planning that is necessary to maintain them, to repair them, to make them more or less functional organisms is of a dimension that is beyond even the understanding of the rational mind.

But I don't think we should abandon the possibility of trying to emulate this non-rational process which insures us of survival and well being. So, I say there isn't any argument about planning. It is, in fact, a biological

imperative. But, by and large, of course, planning occurs in other organisms by mutation and natural selection, and this is a very, very tough and very, very implacable process. Manners produce cultural adaptation as a device by which you can accomplish planning adaptation much more efficaciously, much more quickly. But it is important to recognize that of all the instruments of human adaptation, without doubt the most single important capability is planning, which means now we have to define planning.

I would define planning as a formulation of terms and courses of actions. But we must add, this requires then the attribution of costs and benefits as a function of these alternatives, and that requires us to observe that what constitutes a cost and what constitutes a benefit varies from person to person, varies from constituency to constituency. There are no objective determinants, no universal determination of what constitutes a cost and a benefit. So, now, let's recapitulate. Planning requires the formulation of alternative courses of action with attending costs and benefits. If this is so, this requires the capability of prediction. One must then be able to predict what the consequences are likely to be of a contemplated action. We have got to observe that this prediction will occur in at least three realms. It will occur in the physical world. It will occur in the biological world. And it will apply in the social world, all of which is to say that the person who plans has to have the capability of predicting the consequences of contemplated actions insofar as they will impinge upon the "biophysical-culture" world, with the capability of being able to determine what the costs and benefits are likely to be as a function of these contemplated actions upon these realms. Now, we know very well that this is not planning as we know it today.

Planning, as we know today, is a marvelous potpourri of good will, good heart, bleeding hearts, good judgment, bad judgment, capriciousness, banality, and stupidity, in fairly equal dimensions, and stirred in a pot. So, what should it be?

Well, if we go to the human analogy, there's no question about what the purpose of planning is. The purpose of planning is to insure the health and survival, the health and well being, of whatever system is being planned for, be it algae, fungi, liverwort, mosses, clubmosses, ferns, right up the phylogenetic scale. Every organism, every species, every ecosystem is engaged in this kind of planning in order to insure health and well being. And, I think, biological analogies are always good ones. So, we should be engaged in planning for human health and well being. Now, if this is so, then we've got to define what is health? The very best definition of health, as used by the World Health Organization, is that a healthy man or woman not only solves but seeks problems. This is a remarkable definition. However, it is beyond the understanding of the American Medical Association, which, as we know, is not concerned with health but with disease, preferably a rare and expensive one. (I was asked to speak to the annual meeting of the American Medical Association at a time when my wife, who has since died, was ill. So, I accepted this invitation with honor. I went to Los Angeles. I said, "Gentlemen, what an honor to be asked to speak to you because you are without doubt, the most conservative, bigotted, and powerful trade union in the world." I said, "I want to tell you that I have survived in spite of modern medicine, but I fear my wife will succumb because of modern medicine.") The American Medical Association is not particularly concerned with health, but I think planners have to be, because of all the

absolute creatures in the biosphere we are preoccupied with planning for human health and well being.

Let us address human health as the condition of being able to seek and solve problems. There is another definition, which is, the capability of recovering from insult or assault. And this, of course, we see very clearly in the resilience of ecosystems. In the absence of man, they recover remarkably. However, this capability of resilience is a sub-definition of health. But let's simply operate, for the moment, with the capability of seeking and solving problems. And we immediately observe, of course, that this sounds like adaptation, and for a very good reason - that's what it is. Seeking and solving problems is only another way of describing adaptation. So what constitutes adaptation? Adaptation, we know, is a process which can be defined as "fitting" and "fitness," and the meaning of these two words derive from two entirely different people, but the meanings are complementary. Charles Darwin said that the surviving organism is fit for the environment. It's a lovely, implacable statement that, as far as I know, has never been contradicted. The surviving organism is fit for the environment. A lesser man, but, nonetheless an important one, Lawrence Henderson, who never made better than an Associate Professor Biology at Harvard, but nonetheless, is a great man. (You know the book called The Fitness of the Environment.) He profounded that the actual world with all of its environmental variability constitutes the fittest possible abode for life - every form of life that has, does, or will exist. And he bases his entire argument on the distribution, generally of the life elements, but mainly of oxygen, hydrogen, and carbon, to which George Walls adds nitrogen and one could add sulfur and the phosphates. Nonetheless, here we have two propo-

sitions which could be linked. That is, Darwin's proposition of surviving organisms as fit for the environment. And Henderson said that the actual world offers such an extraordinary environmental variability as to be the fittest possible abode for life. This allows us to reconstitute these as one proposition, which is to say that every system, yourselves, your tissues, your organs (you as an organism, you as an institution), are members of ecosystems, of families, no matter what it is. Every single system is required implacably, as an evolutionary imperative, to find, to seek the fittest environment, to adapt that environment, and to adapt itself. When such a system is, in fact, able to find the fittest environment and/or adapt that environment to itself, it is healthy, by definition. How wonderfully circular. Successful adaptation leads to survival, and the continuation of survival leads to success, and, in the short term, that which we define as survival has a contingent health, on a day by day basis, until terminated by chronic disease or, of course, perfectly natural death.

Now we have dealt with the business of adaptation and fitness - health, adaptation, and fitness, what constitutes fitness in the environment? Fitness in the environment from the point of any consumer - you, the people of the City of Washington and the Potomac River Basin, the people in the Alleghany plateau, Valley and Ridge Province, the Great Valley, the Blue Ridge, the Triassic, the Piedmont, the Crystalline Piedmont, the Coastal Plain, the Estuary, the whole lot of you? What constitutes fitness? It is the selection of finding an environment where the largest part of the work having to be done for survival and well being of the consumer is provided by the environment. The obvious of this is clearly that in an environment in which there are two competing organisms,

and one of these organisms - systems, institutions, industries, people, it doesn't matter what - one of these has to impinge, transport, import, expend more energy than its competitor in either finding the most fit environment, and/or adapting that environment, or adapting itself to the condition of having to expend more energy than its competitor, this constitutes unfitness. Fitness is constituted by finding an environment where the largest part of the work to be done for the consumer is done by the environment without change or with the least change. Now, this, of course, is a conception of energy which Mr. Zerb certainly will not understand, and poor Mr. Ford never could have.

We have made our way now to what constitutes fitness, and we've seen that this is a thermodynamic imperative. This rather circular way, I think, really describes the nature of the problem that we have to encompass. That is, you are engaged with, if you know it or not, in helping people, institutions, and so on to adapt. The purposes of this adaptation is to insure their success, survival, and well being. And if you will understand that this is a primary objective, then it seems to me we can develop an understanding of that which is necessary to achieve these objectives. Recall that I said that you have to have a capability of predicting what the consequences are likely to be of certain contemplated actions, and that these will encompass the biophysical-culture realm. You have got to associate yourself with those people who have this predictive capability. In the absence of this, you simply cannot take money as planners. So, somebody, somewhere, has got to assemble that information which constitutes the last best information. Science can assist you, me, us, in terms of providing a regional understudy, as an interacting biophysical system in which you can make predictions about the consequences of certain

contemplated acts.

Now, I have been engaged in doing this for a long while. As a matter of fact, I may have invented ecological planning. Ecological planning is a fantastic novelty. It consists of using the last best intelligence in science for employment in planning. I get a million dollars from Ford to bring the natural sciences into the planning process, because up to that point, of course, they have never been employed, and it is remarkably reassuring to find tonight that actually a number of planners are now engaged in the planning process. It is no longer a socio-economic process operating in an entirely social milieu. So, what does one have to know? Well, because I, as you know, went to Harvard University where I received an enormous amount of social science through every single orifice for four years, I was never required to take a single natural science course. I brought a significant ignorance of the subject, which of course, I shared with almost all the people who were engaged in the planning process. And this, of course, is continuing widely until the present day. So I had to engage in teaching at the University of Pennsylvania in order to learn that which Harvard never taught me, and I had to devise the information in such a way that I could understand it, being so ill-educated. And the process, I find, works very, very well, because if I can understand it now, the audiences can understand it. I act as a sort of paraphraser, popularizer between the sciences, in planning.

So, in the beginning it helps you to understand that this system is a bio-physical system. Then, there is no way of avoiding the necessity of bringing to bear the scientists of a region, in whose brains reposit the last best information on the area. And I do it in a simple way. I use craniology to reveal

reality. It doesn't matter where I worked. I've worked all over the place - in Minneapolis, St. Paul, the San Francisco Metropolitan Region, the Denver Metropolitan Region, New Orleans, it doesn't matter. I shouldn't go over the list, all over the place. In every case, the system is just exactly the same. You find out who the best bedrock geologists are, who the best meteorologists are, the best groundwater hydrologists, physiographers, surface water hydrologists, soil scientists, plant ecologists, and animal ecologists. In some cases, of course, you have marine biologists and physical oceanographers and so on. But nonetheless, if you define the region, you define the scientist who, in fact, understands the region. So, what I do in every single case is simply hire these people. I get a list of all of the scientists and I send all of the geomorphologists to John Hack, I send all of the hydrologists to Luna Leopold, and I send all of the limnologists to Dr. Ruth Patrick, who is the best. And if we can hire them, we hire them, and there it goes.

In the beginning is bedrock geology. That's five hundred million years of evidence. That's the oldest evidence and the most implacable evidence and the most influential evidence put in the Bible. So, you hire the bedrock geologist and tell him to identify the geological processes which explain the geological phenomenon of the region under study, which he does. Then you get a geomorphologist to tell you the geology of the Pleistocene, which is a million to ten thousand years ago, and he does just exactly the same. Then you ask the groundwater hydrologist to reinterpret the data of meteorology and bedrock surficial hydrology and to tell you about groundwater hydrology. Then you ask a physiographer or geomorphologist to explain the current state of the wrinkles by interpreting the exposed bedrock and surficial hydrology, surficial geology,

and you get topography, or physiography. And then you ask a gravity and surface water hydrologist to explain why water is where it is and what it is, which he does without any trouble whatsoever. At which time, you then invoke a soil scientist just to tell you why the soils are what they are and where they are, and of course, you have variables. And to explain the variability, you have to invoke bedrock geology, surficial geology, groundwater hydrology, physiography and the various soils, at which point you can investigate plants, which are variable with respect to environments, which environmental variability is defined in terms of the variability of meteorology, geology, bedrock, surficial geology, physiography, hydrology, and soils.

It is a novelty of surpassing wonder in the planning process. The fact that a person like me is doing this is an indictment to you all. The people who do that are much more complex than this. I have to simply popularize it and simplify it for the planning process. So, there we go. If we're lucky and if we have enough money, we have a descriptive model of the region under study, because all of these layers, of course, are real layers. The world is divided by science and language, and somebody has got to put it together again. It's like: "Humpty-Dumpty sat on a wall, Humpty-Dumpty had a great fall, all the King's horses and all the King's men, couldn't put Humpty together again." So, that is what you have to do. Science has divided the world into all of these separate parts and resists wholism like the plague. Anybody who is committed to whole systems will not get promotion or retirement. And so you got to induce them by marvelous coercive devices or that most coercive device called money. And you then ask them to reconstitute all these layers into one single interacting system. Please tell us: Explain the system, the historical system,

explain the system descriptively, but, do please, to the best of your ability, describe it quantitatively so we can actually make quantitative predictions. And, more or less, you can get, at last, the last best information that science has to describe the areas that are interacted by the physical system.

Now, we have some capability for describing the tendencies of this system itself, without the intervention of man, and we have some capability for seeing what the tendencies are likely to be as a function of certain kinds of intervention. For example, in San Francisco you see that the San Andreas Fault is that site apparently most suitable for Veteran's hospitals, clinics, high schools, law schools, and old people housing. This is quite true. I did a study, and found to my astonishment an extraordinary number of public institutions located on the San Andreas Fault. So, I did a little stochastic analysis. I took all of the land uses and all of the buildings for the whole 6,000-square-mile-area and I theorized what would happen if you just threw them randomly over the 6,000 square miles and we calculated the number which would locate along the fault. In reality, we get ten times that number. There is not planning going on. There is anti-planning. How can you get the maximum amount of damage out of the San Andreas Fault? By concentrated investment. This is always true. You see, you assume all of the stupidity that goes on will, in fact, be random, and a good deal of it will cancel out. It never does. Actually, stupidity is accumulated malevolence. But, it is the American way, and one shouldn't entirely knock it. It is certainly better than despotism.

So now, we have some sort of a description of a region under study as an interacting biophysical system, but that doesn't help us. That's only a beginning. That only allows you to consider the prospect of opening your

mouth. Because you have to ask the question: Why are people where they are and doing what they're doing, because we're not interested in rocks or plants or birds or worms or anything of the sort? They are in great shape. In the absence of man, they are flourishing. The only endangered species is man, that creature who has developed a thinking organ at the end of his spine, which may very well be the apex of biological evolution and that might better be described as a spinal tumor. If you look at all his acts upon the biosphere and see him crowing like a cock on a dunghill, insisting he is the apex of biological evolution, I think you would conclude that as he is multiplying at a super exponential rate, destroying that which he depends upon, he can, in fact, better be described as the carrier of a putrescent tumor.

Well, now let's contemplate the necessity of understanding why people are where they are and doing what they're doing. The social sciences, as you know, may not be social and have not before been very scientific, but if you are clever about it, you can select certain social scientists who exhibit enough rigor to allow them to consult with some natural scientists. I have a small group which does this. That is, I start with the biophysical sciences, which are united by ecology as the performance of whole systems. Then, we try to extend this from ecology to human ecology, and we do this simply by going from ecology into ethology, that is, animal behavior. This allows us to take another step into human behavior in ethnology, which is the study of so-called primitive people, although there are ethnologists, now-a-days, who actually study modern Americans. Primitive people can be distinguished from modern Americans because primitive people consider their children, giving them an environment at least as good as that which they themselves received, which, of

course, civilized people are not able to do. If you get from ecology to ethnology to ethnography (which is related to ethnology), the next step is cultural anthropology. And if you want to complete the cycle back to meteorology and geology and so on, you add epidemiology, because the people who are concerned with health obviously have to know about the vectors of disease in terms of geology and geomorphology, in terms of plants, pathogens, and so on. So here I have a little group which, while not extensive, not as complete as one might want, nonetheless is coherent, and all the people can speak to each other, and they have one view of a somewhat limited but nonetheless complete whole system.

We will now use the ethnographer, and we will present the ethnographer with the Potomac River Basin as it was in primeval times - that is, the last time it was in good shape. We'll say that we would like to know where the people were, who the people who first came here were, why did they come here, why did they leave the environment they left, what adaptative strategies did they perform, what environments did they transect before they found the one they selected, how did they perceive the one they selected, how did they adapt it, and how did they adapt to it? And so, using slices of pie which correspond to massive social events, such as the Revolutionary War and the Civil War, and slices of pie which correspond to significant changes in technology, such as sailing boats, canals, and railroads, we make maps showing land uses, and we make notations about cultural adaptations. That is, you can't put a mark on a map, on a land use map, unless you can explain people's perception of the natural system as a social-value system, with particular resources in particular locations for very good and special reasons. They induce particular kinds of means of adaptation, means of production with characteristic institutions which have

characteristic values, which then feed back to a perception of the environment, and which are continuously modulated by technology. So, we do this. Very, very carefully, we at the University of Pennsylvania, whenever we can get a private client to pay us to do it, go through an ethnographic history in which we come up to the present. At that point, we can say two things. From the biophysical study, we say that we know why it is, where it is, what it is, and where it is going, to the degree known to the natural sciences. And we can say we understand why people are where they are and doing what they're doing, to the degree known to the social sciences. We find a structure. The social sciences, through an ethnographic history, have no softer data, no better and no worse than a geologist or a hydrologist or a soil scientist has, and there is structure.

Having come to this point, the next thing to do is to find out what people's perception of the environment is and what the needs and desires are, what are the expectations and ambitions. And this, of course, is done by anthropologists who engage in interview schedules to elicit just exactly that sort of information. And when that information is elicited, it is just as good as a soil scientist's description of a soil or a geologist's description of a rock. If one says, "I cherish this or I love this white house," he denies the right of the Department of Transportation to demolish it for an Interstate Highway. The man who said this is, in fact, giving a piece of evidence, and it can be an evidence of one person, or it could be a sample from a larger constituency. There are perfectly regular, effective, statistically-valid ways to key informative interviews as statistical interviews, which allow you to identify a constituency or constituencies. We now have a perception of the environment and of the needs and desires of its inhabitants.

Now we've come to the point where we can actually begin to engage in planning, because I say to you that plans that come only out of the heads of planners are festering horrors. Planners who believe that we should plan for people should be caused to change professions immediately - to selling insurance, or second hand cars, for example - because this, of course, is a beginning of despotism. Any planner who knows what's good for people doesn't really know what's good for people. Plans should come up from constituencies. If you, in fact, have gone through the ethnographic history, you have identified that there are constituencies. There are people who as a function of necessity, or income, or occupation, or location, can be described as a community for certain purposes. That is, Italian mushroom farmers in Chester County are a constituency. Quaker dairy farmers, who are their neighbors in Chester County, are a constituency. The Puerto Rican mushroom workers, who work for the Italian mushroom farmers, are a constituency. The Mexican-American illegal immigrants, who work with the Puerto Ricans for the Italian mushroom farmers, are a constituency. The Executive Vice-Presidents of DuPont, who are pretending to be farmers, and their neighbors are a constituency. And the Andrew Wythes, who are living nearby in a 19th century nostalgia, are, in fact, also a constituency. By their own definition of themselves, they can be identified as a constituency. And we can assume this, because there will be particular ways in which you can expect them to respond. That is, I know the way Quakers will respond on the subject of amnesty, and I know the Italian mushroom farmers in Chester County will have an entirely different attitude on the subject. But I also know that Quaker mushroom farmers in Chester County and Italian mushroom farmers in Chester County will behave identically on matters affecting the mushroom industry. Anyway, we

can go through this exercise, which we do regularly, and we'll identify independent constituencies. We will have key informative interviews and we will have statistical interviews, and we'll plot every single boundary, association, and government, and we'll see the network of connections of ownership of banks, membership of banks, membership of Watershed Associations, etc., etc. We'll be able to see the network of power and make some sort of prediction about the kind of behavior of different constituencies with response to certain issues. And, moreover, from this kind of analysis, we'll see that particular people have particular kinds of needs and desires. It will be possible now to make clumps of needs and desires shared by particular kinds of constituencies, which, I say to you, is the beginning of planning.

Now, there is another thing that has to be done at this point. Somebody has to speak for the future for children, yet unborn. And so, we have an entirely different group of people. We bring in then the lugubrious economists, housing market analysts, industrial market analysts, transportation analysts, and say to them: "Please, will you fabricate certain kinds of scenarios about what the national future will be, what the regional future will be, what the sub-regional future will be, and then, can you give us some alternative scenarios within these which will tell us about what the population will be for housing market, etc., etc? All of you know these things, and out of them we can formulate growth markets."

Now, we are in fairly good shape. We have the degree that science can give us in that we have a predictive capability about the biophysical world. That is, the best natural science has been assembled to give us the best descriptive and quantitative model of the region under study as an interacting biophysical

system with a prediction of what the consequences are likely to be of any contemplated action. For example, if the Defense Department or the Rocky Mountain National Arsenal wants to put low level atomic waste in some fractures and fissures in the Front Range, we'll get earthquakes. And then, if they decide that they did something stupid and should take it out, what will we get? More earthquakes. It really happened.

Here we have a situation under which we have the last best description of the region under study as an interacting biophysical system. We have, next, identified why people are where they are and doing what they're doing. Moreover, we've identified them as constituencies. Next, we've been able to elicit from them their perception, their needs, and desires. But we have got to the situation where we understand why people are where they are, doing what they are doing. We understand what the needs and desires are, and we can see that there are constituencies with particular kinds of desires. And we can formulate what the demands of the future are likely to be, and we can make growth models.

The only other thing that I have to introduce is the allocation of resources. And we allocate these resources in response to the value system. The most important thing in the planning process is making values explicit. And I will say to you, the most important single variable in every single planning solution is that the value system of the problem solver. Given a uniform data set, you'll get variable solutions as a function of variable value systems of various problem solvers.

Now, let me illustrate this with an example from the State of Delaware. The State Highway Department of Delaware asked me if I would participate with

them as a designer of an outer Beltway in the Wilmington area. And I thought it was very, very strange. So I investigated the situation and found out that the Federal Department of Transportation had pointed out that there is a good deal of traffic going through Wilmington and not originating or ending there. The only point they wanted to make was to bypass it. But, of course, anybody who knows the morphology of Wilmington understands that Wilmington is an urban area surrounded by DuPont's living shadows. And the morphology of any bypass meant it would have to transect DuPont after DuPont, which is not the sort of thing you do in a State Highway Department of Delaware. So clearly, what they needed was an environmentally-sensitive patsy. Me. Nothing is more gratifying then screwing people who want to screw you and getting paid for it. So, I accepted the invitation with two modest modifications to the contract: one, that it had to include an alternative of no highway; and the second, I would not find an alignment but merely devise a method for finding an alignment. We had done a similar study for an advisory group, called the Piedmont Group, a very elaborate ecological study of the sort I talk about. We decided the highway had to go through this exercise. We digitized it: one-acre cells, the best data set in the world, the best computerized data set in the world. So, I then went to the four senior highway engineers, and I said: "Gentlemen, this is the most magnificent description of a biophysical-cultural region in the world with the highest resolution available ever. All you have to do is to mark with your little stubs of pencil and make your own weights. If you want to describe priceless habitat, put a low value against them. If you like to get the maximum sedimentation streams, here are the most erodable soils. If you would like to destroy the most valuable forest, put a low value on trees.

If you think something is particularly valuable, give it a high value. If you can count to three, do it: one, two, three. If you can count to ten, do it. If you can count to hundred, that's all right with us. We can normalize all your numbers.

And so, they made their marks. It was absolutely incredible. I said: "We'll just give them to the computer, and you can take some trial alignments, too. You can take some trial alignments because of the computer procedure, which can compute all of the transgressions and all the benefits in your value system. And we can find the best solution for your value system." So, each of them did one. And each produced entirely different alignments. They said: "Mr. McHarg, what alignments should we select?" "Oh," I said, "Don't you remember the contract says that I don't have to select an alignment. Far be from me, a Scottish immigrant, to act as a surrogate for these rich and powerful people. Not me. No. If you want to act as a surrogate for their values, if you want to speak on their behalf, feel free. Absolutely." And so, the moral of the story is: The solution varies with respect to the value system of the problem solver. And generally, of course, this is never made explicit.

If you can make the values explicit, you don't derive them out of the air. You derive the values from the constituencies. That is what they asked me in Wilmington: "How will we do it, Mr. McHarg?" "Oh," I said, "very easily. You'd hire us, and I would hire some anthropologist, and we would go with this data set, and we'd get the different constituencies to put their marks on." They can put their weights on. And then they can see what the alignment is as a consequence of the values. They can compute all of the transgressions and all the costs, all the benefits. They can conclude whether or not the benefits

exceed the cost. And if the benefits exceed the cost, they can agree. But obviously there will be variation between the different constituencies who are going to be transgressed and transected, but then they have this. They can trade. They can have trade-offs. They can say, I have this value, and you can see that value. If both really want this facility, that is something - all the values are explicit. But, of course, the idea of democracy entering the State Highway planning process is obviously not about to happen, and so the thing fell like glass, shattering on the ground, and this highway, happily I'm sure, will never come to be. Best thing that could ever happen to it. That's the ecological planning process, and you can't operate short of it.

Now, you're engaged in a study of the Potomac. And the only decent data set for the Potomac River Basin is owned by me. It consists of 600 maps. Secretary Udall decided that there should be a task force on the Potomac. And by then, he decided the instrument to do this was the American Institute of Architects, a group of people not distinguished for their understanding of the biophysical, not to say, the cultural processes. And so, he mobilized a lot of very important architects who, as I say, knew nothing about biophysical processes; they wouldn't have been able to understand them if they had been labeled. And he constituted this committee. And I said that I wouldn't be seen dead on that committee with a lot of architects and you better get some natural scientists on it. I suggested a number, and they selected two brilliant ones: M. Gordon Wolman and Dr. Ackerman, the geographer. But it was not enough, and, of course, this group didn't have any staff. So the question was: How could we get a hold of any information? I asked 12 graduate students of the University of Pennsylvania if they would be prepared to spend a year of

their lives working on the Potomac River Basin Study and give this great, impoverished Federal government just a little help that it needed. So all these poor students, who were starving, spent a year of their lives, just about giving away their eyesight, to produce 600 maps, which, when delivered to the task force, they couldn't read or understand. Architects don't know anything about geology, geomorphology, physiography, hydrology, soils, lithology, or any of these things, and, of course, Udall didn't either. And so, it died.

But we have 600 maps of the Potomac River Basin Study. We studied all of it at 1 to 250,000. And then we studied every single physiographic region at 1 to 62,500. Then we took sites, which were 1 to 24,000 quadrangles, within everyone of these regions, and we also did transects. And it is a most absolutely astonishing study. I think it is a matter of deep embarrassment to you, that the 600 maps of the Potomac River Basin, which constitutes the last best information about this area, reposes at Wallace, McHarg, Roberts & Todd. Why are they there? Because the University can't afford the insurance. They are the property of the University of Pennsylvania, but they can't afford the insurance, so my office has insured these things since 1965. They are not anything like good enough, but they're better now than what you have got. These data that we have collected, the last best data of 1965, were accumulated by students from published data, because we generally did no data gathering on our own. To go from that caliber of data to the caliber of data which San Francisco Metropolitan Region has is a gigantic leap. But I say to you that you cannot, in fact, plan, really plan, without such data. And I think all of us, you particularly, have got to somehow insure that, by association of States or by some arrangement, somebody is required to produce that information which is indis-

pensable to you for making the predictions of the consequences which are likely to result from certain contemplated actions, to be able to conclude what the cost and benefits of these actions are. And to be able to assure yourself and others that these contemplated acts, when completed, will contribute to human health and well being. And I wish you well. Thank you.

THE POTOMAC AND BUREAUCRATIC (IN) ACTION

The Honorable Herbert Harris
U.S. House of Representatives

Mr. Harris, who represents the 8th Congressional District in the Commonwealth of Virginia, is a member of the Post Office and Civil Service Committee and of the District of Columbia Committee of the House of Representatives. As Chairman of the Sub-Committee on the Environment of the District of Columbia Committee, he conducted a week-long series of hearings in June 1976, devoted solely to the Potomac River and its problems. Prior to his election to the House of Representatives, Mr. Harris was a member and Vice Chairman of the Fairfax County Board of Supervisors. Mr. Harris is now serving his second term in the Congress.

I am pleased to be here. I wanted to come here to congratulate you for addressing the challenge that I think exists as far as creating a strategy on the Potomac. It was a long time before I got educated on the Potomac, and I should tell you my main point of education. I represent the Mount Vernon district in Fairfax County, and there is something you should know about the Mount Vernon district. It's downhill from the rest of the county, and if you don't become an expert in sewers and sewage plants in the Mount Vernon District, you're not going to represent that District very well, because we have all the sewage plants. Actually, we had an environmental expert on our Board of Supervisors that one term, but he was up into the middle of the county. I think he knew more about the environment than I did. I notice he's here today, Don Bowman. I swore I was not going to become an expert on sewers and sewage plants, but, by George, I stand here today as a guy who has crawled through

more sewer pipes than anyone else in the Metropolitan Area, and anybody who wants to check me on my knowledge of BOD's and COD's and a few things like that, just better come on, because I just happen to know it. I'm ready to go.

When I got together with Gilbert Gude two years ago and started talking about what should be done with regard to the Potomac, I was frankly amazed at how little had been moved forward after a lot of conferences and a lot of agreements and a lot of decisions. There was one thing that both Gil and I were committed to, and that was what the Potomac needed was not another report. It did not need another study. What the Potomac needed was to identify what should happen, identify what has and hasn't happened, and then move ahead on trying to accomplish the things that a lot of us knew should have been accomplished 20 or 10 years ago. This is what we tried to do when we set up the Congressional hearings, and this is what I hope to pursue in accomplishing, now that we have identified some of the places we are and aren't with regard to Potomac.

I have to pause for a minute to tell you that in this process I, personally, and I think the region, in general, will miss Gil Gude a great deal. There is no one who is more knowledgeable, more dedicated, more persevering with regard to environmental matters, especially as they pertain to the Potomac, and I think his contribution has been immeasurable. His help will be sorely missed, and I just hope that Gil stays active in one way or the other with regard to Potomac matters, because his knowledge and his empathy to the problem is going to be missed. He's also one heck of a fine guy to work with, and I'll miss him in Congress a great deal.

I think that as we moved into the hearings, some of the problems that we

solved were really kind of amazing. The Council of Governments, in the Washington Metropolitan Area, had created a Conservation Agreement over two years ago. It was there, it had been created, but there was only one problem. Nobody had signed it, and you wondered why nobody had signed it. So we started asking, and I think everybody was waiting for somebody else to sign it first or something, and, as most folks know, I've always been a strong advocate of the subtle approach. So, I called up the Corps of Engineers Commanding Officer and asked him if the Corps of Engineers wanted to come before the Sub-Committee and sign the Conservation Agreement, and you know, they did. They came over, and we had a session where the Corps of Engineers signed the Conservation Agreement. It was an unusual place to start since they have charge of most of the water supply in the Metropolitan Area. And after they signed it, in the last few weeks and couple of months, we now have all those who are withdrawing water from the Potomac in the Metropolitan Area signatory to that agreement. We have twelve of the jurisdictions signatory to it, even those who are not withdrawing, and, at least, we have gotten to the place with the Conservation Agreement where it is signed and a basis for mutual understanding between the jurisdictions that have responsibility in this area.

We made another interesting discovery. You know we have committees and commissions and governments in the area, and I had heard about the Potomac River Basin Advisory Committee. I knew that the job of that Committee was to coordinate the activities of the States with regard to the Potomac, but what we discovered about this Committee that everybody liked to talk about was that it had a total budget of \$35,000 and total personnel of three part-time staff members. That Committee has been put to rest with a decent burial, and I think

at long last we are reaching a state of honesty, that we really have no one coordinating and bringing together the efforts that should be brought together with respect to the Potomac.

We ran into another interesting thing; at least, it was interesting to me. The U.S. Geological Survey told us that they had discovered a high concentration of PCB at Antietam four years ago and, for some reason, had decided not to tell anybody about it. They had told their staff, but nobody ever told EPA, no one ever told any of the other agencies, and no one had done anything about correcting it. We understand now that the U.S. Geological Survey has changed their information process and are going to tell the Environmental Protection Agency now if they discover concentrations of PCB's in the river, and maybe even get to the point of doing something about it. I think this represents some real progress. We have, by the way, run up to Antietam, and I'm happy to report that the PCB's aren't there anymore. We don't know where they are, but we'll keep looking.

I also made an interesting discovery as far as Northern Virginia is concerned, and that was how we were running our water supply over at Dalecarlia. It was very interesting to me, representing some folks over in Northern Virginia. It was even interesting to my colleague, Joe Fisher, when I reported the fact to him. We discovered that we were still running the Corps of Engineers operation at Dalecarlia just exactly the way we had before home rule. Nobody noticed the change, except that we put money into the District of Columbia budget to run Dalecarlia, and then all the revenues that Dalecarlia got from the Federal government and from Northern Virginia went into the District budget. We did a quick calculation, and we discovered, as some of you may recall, that the District

government was paying \$1.13 for 10,000 gallons of water and Northern Virginia was paying about \$1.75 for 10,000 gallons. For some reason or another, we didn't think that was fair, and we do think that, either through administrative action or through legislative action, we will have everybody pay the same price for the water from here on out and not have one jurisdiction paying more than the other. Fifty-four percent differential in water prices probably isn't fair, and I think that will be changed. I hope something else will be changed with it in accordance with the bill that Mr. Gude and I introduced, along with Mr. Fisher, and that is that we should have at least the authority to have rates, create differentials during low flow periods for conservation purposes, and as long as many of the other jurisdictions are doing it, it seems like the Corps should be doing it, too. I think that this is an important change that has got to be considered and implemented.

I also discovered that the District of Columbia and the Environmental Protection Agency were mad at the Park Service due to their efforts to get a composting site at Oxon Cove which would provide some solution in regard to sludge at Blue Plains. Now we have made great progress in this, I want you to know, because the District and EPA were wanting to do this 3 months ago, and the Park Service was holding them up. Now, the Park Service is wanting to do it, and the District is holding them up. With that kind of progress, you know we are really doing something. But seriously, we've got 30 acres over there, next to Blue Plains, where a composting operation can be put in, where you can actually solve the problem, the tremendous problem of sludge disposal. I don't think there is anything so obscene as having trucks running around these jurisdictions full of sludge, and I'd hate to get hit by one. If I'm responsible

for stopping that sort of travesty on our highways, I'll be terribly, terribly proud. But more important, if we are going to get serious about cleaning up the Potomac, we shouldn't have the situation that I expect we've had for the last several months, and that is actually making the decision not to run a plant at full efficiency because we didn't know what to do with all the stuff after we got it out. I think we've got to come up with some long-term solution to sludge disposal in an environmentally sound way. I think it's crazy to spend all kinds of money and trucking it for some distance to where you bought land to use it as a land fill when it does have economic value. I think we can come up with a composting operation, and I think we're going to. Somebody asked me the other day how soon, and I told them last week. We have had two sessions between the EPA, the District, and the Park Service to get this worked out. I was assured at the last session I had with them that it was going to be worked out in 10 days, which was about two weeks ago. I'm going to tell you this afternoon, it is going to be done next week, it's going to be done some way or the other. They are going to get together and get the minor bureaucratic differences resolved, and we're going to have a composting operation at Oxon Cove, because it solves problems, and because it makes a whole lot of sense to have a composting operation next to the plant that's producing the sludge. If we are not careful, we're going to give evidence of a government that's starting to plan its operations, and I know that will seem revolutionary here in the Washington Metropolitan Area. I think that the savings you can make with such an operation, tremendous savings, can finance the operation, and I think we should move ahead and start making these kinds of step-by-step points of progress that we don't just keep talking about.

I feel that the hearings made a major discovery, and that major discovery was that there is a silent partner on the Potomac, and this silent partner is the Office of Management and Budget of the Federal government. I think that what we've had in the Executive Branch is a complete dispersion of responsibility with regard to the Potomac. With it being everybody's responsibility, it became nobody's responsibility. Our basic environmental questions are being handled on an accountancy basis by the Office of Management and Budget which said: Why not save the money? Why not cut it out? And there just wasn't anybody around here who was that interested in achieving the environmental results that you and I want to achieve with regard to the Potomac. Who are they, these faceless wonders? I think what we've got to do is to bring this out in the open. I don't think the Executive can treat the Potomac with the same policy that they treat the Ohio or the Mississippi. The Ohio is not the water supply for the Pentagon, Andrews Air Force Base, or the White House. The Mississippi is not the drinking water of the majority of the Federal employees, including the President, the Vice President, and the Chief Justice. I think that the Potomac is all of those things and that the Executive Branch is the major employer and the major landlord in the area. Not since the Udall Report in 1968, on the Nation's River, has there been any comprehensive Executive Branch plan for the Potomac.

I don't think any of us want some sort of an autonomous, regional agency. Well, maybe some of us want it, but we're afraid to say so. But I don't think it will work. I think we've got to be practical about it. I think we can have a regional accomplishment if we can come up with the mechanisms to make the jurisdictions work together, and to change the Executive Branch of the Federal

government from its silent partner operation to being the catalyst, the person, the entity, that brings unity to the effort, and to make sure the jurisdictions are working together, at least on something, with respect to the Potomac. I'm not talking about a take over by the Federal government, but I'm talking about a positive active partnership on the part of the Federal government, and moving ahead on programs that are essential if we are going to do something about the Potomac. I realize the natural and historic and competitive positions of the various jurisdictions in the area and in the whole river basin. And we're not going to change overnight their natural and their historic and their long-term positions, but, as a matter of self-interest, they are going to have to work together, and we've got to come up with a mechanism to encourage and in some cases make them work together. I subscribe to the philosophy that the local jurisdictions are going to have to realize that something positive, something essential, is going to happen with regard to water supply and environmental concern for the Potomac, and if they are not going to do it, somebody is going to do it. There has got to be that alternative.

I hope, after many many years in local government and regional organizations, that we find the way for a regional operation to work, for the cooperation between the jurisdictions to succeed, but I'm saying today, and I will continue to say, that if they don't, we have got to find a way to do it. The Federal government may be the way, but a responsible local official is not going to sit back and let that happen, because if it happens, it's going to be that local official's responsibility. I think someone has got to start talking about what the alternatives are, because we can't let it slide the way it's been sliding. I think that the Federal government as a cabinet, as a unifier, as a

helper in this operation, is an important one, and I hope that that's the role it maintains. But it may not be the only role it maintains, unless local governments understand the responsibilities of state and local governments. I think this is especially clear if we can get this sort of cooperation implemented.

It's especially clear with regard to land use planning. I have gone through the land use planning problems, the confrontations, the efforts to move ahead, the getting slapped down by Richmond, the being attacked by developers, the whole process. We simply cannot have land use decisions made on a parcel-by-parcel basis. We can't have them made on a jurisdiction-by-jurisdiction basis without some attention to regional capability, to regional plans, to regional objectives that have to relate to the Potomac and to what we're doing to the Potomac.

I understand you received a telegram from President-elect Carter today, congratulating you and pledging his support for your efforts. And I think that's good. I think Jimmy Carter has a good record on the environment as a Governor as far as his decisions are concerned. I think you can be sure that he won't be cutting the Federal contribution to the Interstate Commission on the Potomac River Basin, and I don't believe he will ignore our nation's rivers.

I think that America's third century looks very bright as far as the environment is concerned. I think the education that has been done has improved the awareness of where we should be going. I think basically we have got to have the courage, we have to have the guts to say we are going to go ahead and do it. We are going to establish this as a priority matter. In this particular period, with 8 or 9 million unemployed, with maybe 15 or 20 percent of our capacity unutilized, we do have the ability to move ahead and do some of these public

works projects that can have an effect on our lives, our children's lives, and our grandchildren's lives 100 years hence. I think this makes eminently good sense, and I think we ought to go ahead. When anybody says to me that there are 8 or 9 million people out there who don't have anything to do, and then, when I look at the Potomac and our other rivers and the projects ahead that should be done today, I say somebody's crazy. We've got something for them to do, and it's something that's very important. I think that this is our challenge in the third century. We've talked about economic problems in the past, and they are important, but we have today societal problems that are linked directly to the environmental problems that we should be coping with, and they should not be on an "also-ran" basis as far as our priorities are concerned. We should start out in this country with a group of sound, environmental objectives, then we should go ahead and get them done.

I say that we have a chance here in the next two, four, six years to start getting on to an action program of achieving some real environmental results, and I hope we start with the Potomac. I think we have our agenda of action pretty well settled on what we should be doing, and I hope that State and local governments can join with a Federal government that is sympathetic to this task and go ahead and move on the job. Thank you very much.

Division of Tourist Development, Maryland Dept. of Economic and Community Development



APPENDICES

APPENDIX A:
THE POTOMAC CONFERENCE AGENDA

November 4-5, 1976

Sheraton National Motor Hotel
Columbia Pike & Washington Boulevard
Arlington, Virginia 22204

Thursday, November 4

9:00 a.m. - 10:00 a.m.	Registration
10:00 a.m.	Welcome and Conference Objectives Vladimir Wahbe, Secretary Maryland Department of State Planning
	Keynote Speech Dr. Abel Wolman Professor Emeritus The Johns Hopkins University
11:00 a.m.	Federal Activities in the Potomac River Basin
	Lt. Colonel George B. McManus Deputy District Engineer for Civil Works Baltimore District, Corps of Engineers
	Daniel J. Snyder, III Regional Administrator, Region III Environmental Protection Agency
	Douglas P. Wheeler Deputy Assistant Secretary for Fish, Wildlife, and Parks Department of the Interior
12:30 p.m.	Lunch
	Luncheon Speaker The Honorable Gilbert Gude U.S. House of Representatives
2:00 p.m.	Potomac Issues and Solutions

2:30 p.m.

Water and Related Land Discussion Groups

The Conference participants formed seven discussion groups. Based on the Pre-Conference Report, the participants discussed specific issues and recommended actions with the objective of evaluating, redefining, and expanding these recommendations. Particular emphasis was given to identifying potential impediments to successful implementation of the recommendations.

The Discussion Group topics and leaders were:

Water Supply - Thomas G. Schwarberg
Water Quality - Henry Silbermann
The Estuary - Dr. L. Eugene Cronin
Recreation - John Capper, Fred Cutlip
Agriculture and Forestry - Dr. Berkwood Farmer,
Bill Corlett
Urban and Major Public Facilities - Dr. Lewis Waters
Mineral Extraction - Dr. Kenneth Weaver

5:00 p.m.

Discussion Groups adjourn

6:00 p.m.

Dinner

Introductory Remarks
Paul W. Eastman
Executive Director
Interstate Commission on the Potomac River Basin

Dinner Address
Ian McHarg
Chairman, Department of Landscape Architecture and
Regional Planning
University of Pennsylvania

Friday, November 5

9:00 a.m.

Synopsis of Group Discussions

Each group leader summarized the discussions of the previous day.

10:00 a.m.

Mechanisms for a Potomac Strategy

The Discussion Groups reconvened to discuss recommendations to follow the discussions of the previous day and the institutional arrangements necessary to implement the recommended actions.

12:30 p.m.

Buffet Lunch

Luncheon Speaker
The Honorable Herbert Harris
U.S. House of Representatives

2:00 p.m.

Potomac Strategy - Concensus and Commitment

Group leaders summarized the recommendations of the Discussion Groups, with a special focus on identifying those actions which can be pursued immediately.

3:00 p.m.

Conference Summation

Larry Houstoun
Director,
Office of Planning and Program Coordination
U.S. Department of Housing and Urban Development

3:30 p.m.

Adjournment

**APPENDIX B:
THE CARTER TELEGRAM**

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RE: THE POTOMAC CONFERENCE, LARRY HOUSTON, FONE AND DLR, DLR

CARE SHERTON NATIONAL HOTEL

ARLINGTON VA

PRESIDENT-ELECT CARTER HAS ASKED ME TO SEND HIS BEST WISHES TO THE
1976 POTOMAC CONFERENCE. COOPERATION OF THIS SORT IS NEEDED
THROUGHOUT THE UNITED STATES TO IMPROVE RECREATION OPPORTUNITIES AND
WATER SUPPLY AND TO REDUCE POLLUTION AND FLOODING. HE LOOKS FORWARD
TO WORKING WITH YOU DURING THE NEXT FOUR YEARS.

BARBARA BLUM DEPUTY CAMPAIGN DIRECTOR

NNNN

1205P EST NOV 4 76

Telex

western union

APPENDIX C:
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