

Erosion and Sediment Control Progress

I am pleased to represent USDA at your annual fall public meeting. This assignment, above all, required that I learn more about water resource management in the Upper Potomac Basin. Someone has said that where you stand on key issues depends on where you sit. Also, in too many cases it's not really important what the "facts" are--but what people "think" they are.

On January 4, 1965, the President of the United States expressed concern for the problems of this area when he said in his State of the Union message:

"We hope to make the Potomac a model of beauty and recreation for the entire country. "

Where does that leave us at this point in time in this important river basin?

You know many of the answers to this question better than I. I've been told:

--~~Annual~~ delivery of sediment into the Potomac estuary is still estimated at 2.5 million tons, an average of about 170 tons to the square mile.

Gross erosion rate in the Potomac basin is still estimated to be about 50 million tons annually,

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Material used by Norman A. Berg, Associate Administrator, Soil Conservation Service, for talk at the Annual Fall Public Meeting of the Water Resource Management in the Upper Potomac Basin, Interstate Commission on the Potomac River Basin, Harrisonburg, Virginia, November 5-6, 1970

- According to data collected for the recent CNI, conservation treatment is needed on an additional 6.4 million acres even though, --3.7 million acres in the basin have already received adequate conservation treatment.

(We haven't finished the sediment control job on farm or forest or rangeland by any means, but sediment in suburbia is an increasingly challenging and difficult frontier of conservation. In the Detroit metropolitan area, for example, a recent study showed that construction on just 2 percent of the land produced as much eroded material as was produced on the other 98 percent of the urban area surveyed.)

- In the upper two-thirds of this basin, sediment production is just over 100 tons per square mile annually,

- Further downstream, sediment production ranges from 300 to 700 tons per square mile, while in the flat coastal areas, it is about 50 tons per square mile a year. Pollutants such as phosphates become attached to these particles of sediment and are transported downstream by runoff water. In some places near Washington, silt is more than 9 feet thick at the bottom of the river.

As you know, through Carl F. Johnson's leadership on a National Sediment

Conference, local efforts to cope with the Nation's most abundant water pollutant--sediment--are now being assisted through a new publication entitled "Community Action Guidebook for Soil Erosion and Sediment Control." Compiled by the

*Dr. Wolman's study  
Stuart Finley's Error 2020*

National Association of Counties Research Foundation, it encourages more attention to sediment pollution problems and aids in the development of local programs. The 64-page, illustrated, nontechnical guide is the result of a research project funded by the Federal Water Quality Administration.

Although sediment damage statistics and control methods are mentioned, the guide deals more with administrative tactics than technical aspects of the issue. Emphasis is on erosion and sedimentation in developing areas where construction alters drainage patterns, increases runoff, and removes vegetation for months at a time. It weaves case histories of existing sediment control programs into a 10-chapter description of ways to organize, finance, implement, and enforce the programs. In all, the collection of basic principles, figures, and experience should be a timely reference for officials engaged in local pollution control programs. We are pleased that some of the information was provided by the Soil Conservation Service. In recent years, through conservation districts, SCS help to suburban developers in reducing construction-site erosion problems has grown. Many of the methods that work on agricultural land can be adapted to control urban erosion as well.

Maryland's new statewide Sediment Control Program will, by law, pursue a policy of mutual cooperation and effective utilization of existing county, state, and federal units of government. Each county and municipality is to adopt sediment control ordinances, and serve as the primary unit of government for administration, inspection, and enforcement for sediment control. This is to allow most control activities to remain at the local level--and give,

I understand, the State a back-up role in sediment control. This program also utilizes the conservation district in each county as a technical advisor for erosion and sediment control. At a recent Urban Conservation Tour in Baltimore County, Maryland, representatives of local government were given ten points that the State thought important in preparing and operating sediment control programs:

1. The elected officials in the highest level of government should understand the problems surrounding sediment and erosion control and then provide the necessary support so that the program may get off to a good start.
2. Once the high level officials have decided to give the necessary backing to whomever is responsible for preparing the program, an approach for preparation must then be decided upon. There are, no doubt, various ways to solve this problem. However, in Baltimore County, appointment of a so called Task Force to study the broad aspects of sediment and erosion control as it applies to your particular County is necessary. This Task Force should consist of various knowledgeable personnel representing agencies from both within and outside the County. PLEASE MAKE CERTAIN that those most affected by the particular program be a part of the Task Force. For example, Baltimore County's Task Force consisted of a representative from the Baltimore Chapter of the Maryland Home Builders Association, a representative of the County Highway Association, a representative of local industry, a representative of the Consulting Engineers in the area, a representative from the Conservation District of Baltimore County, and various personnel from Planning, Health, and the Department of Public Works--agencies who would be responsible for implementing the program.

The reasons for obtaining such personnel follows: a) Because of the newness of the subject, as many people as possible who may be able to contribute information should be available. b) Secondly, in order to assure the success of the program, it is wise to obtain the outside agencies such as the Home Builders or Developers so that they have an opportunity to make their comments and suggestions. It should then be rather obvious that the program would be more acceptable to such groups, and the program should then receive better cooperation from those most affected.

3. Once the Task Force has been appointed, it decides the scope of area to be covered. Should it simply be an area involving one county? Perhaps several counties? Or possibly the total major watershed? Maryland's law suggests the individual county approach.

Baltimore County, being a highly urbanized county of approximately 610 square miles, with a population of about 650,000 people, decided to provide its program for all construction, grading, and earth moving activities, especially in the urbanized areas.

4. One of the first steps of the Task Force is to investigate the existing legal or policy bases for proper operation and enforcement. Maryland's state legislation requires the counties to prepare these programs. However, there still may be necessary local legislative or policy changes in such documents as subdivision regulations, building codes, or for that matter, in your charter if you are a charter government.
5. Another important problem for the Task Force is the scope of organization that will be necessary to implement the program. Here again, depending on the existing county's organization and the estimated activity of sediment control, the type of organization and the amount of personnel will vary. In the case of Baltimore County, they had rather large departments of Public Works, Planning, Engineering, and Permits and Licenses, making it relatively easy to assign the sediment control responsibilities to the various departments. In some instances they said it may be necessary to actually create an agency to be responsible for the program, or have consulting personnel actually implement the program.

6. With regard to the program, all of the work that has been done in its preparation and operation will be severely handicapped unless provisions are made for capable inspection personnel to enforce the sediment control and actual construction. Baltimore County hired two experienced people in the sediment control field and placed them in its Permits and Licenses Department so that they could, through field enforcement and inspection, make certain that the program was operating properly. These people preparing sediment control plans also got out in the field prior to their preparation. The Deputy Director of the Department of Permits and Licenses indicated that prior to the operation of the program, he would have at least 50 telephone calls the morning after a heavy rain-- the people complaining about sediment and drainage problems. Since the program has been in effect, he indicated that one or two calls under similar conditions are now expected. This is just one example of how an effective sediment control program can be a cost saving.
7. Allowing for flexibility of development in any plan is a must. There have been certain counties around the country who prepared extremely rigid legislation which really made it inoperable both from the standpoint of the county and the developer. Of course, the program should include single family residences in addition to large industrial, commercial, public construction, or residential developments. It is these large developments where flexibility in construction and planning should be allowed. Flexibility may also be required with individual residential lots. Also, for example, their school board lets a separate contract for grading and utility construction. They find it better to grade the entire area, and the sediment control requirements are adjusted to allow for their way of construction.

The most effective method of sediment control where construction activities are involved is to disturb only the area of soil where the construction is actually taking place. However, in many instances, it is more economical for the developer to grade the entire area of the subdivision; and, therefore, in formulating our sediment control programs and in their implementation, we must be flexible enough to allow for these construction methods and still prevent the sediment from getting into our waterways or on adjacent properties.



8. Since the subject of sediment control is relatively new, the use of the conservation district and other personnel as consultants is highly recommended. As far as Baltimore County is concerned, they rely very heavily on the conservation district's recommendations. In fact, a member of the conservation district actually sits in on a committee of the county which reviews preliminary subdivision plans. This committee consists of personnel from Traffic Engineering, Health, Planning, the Department of Public Works, the Maryland State Roads Commission, and other necessary agencies who can contribute to the review of these preliminary plans. This kind of review is very early in the game and is primarily done to familiarize the developer as to necessary engineering, planning, sediment control, etc. requirements. Of course Maryland's law will require review and approval by the local conservation district.
9. Probably an <sup>N</sup>innovation, as far as Baltimore County's program is concerned, was the orientation and training course that was offered prior to the program becoming effective. They spent at least two hours a week for a period of four weeks discussing the program with all of those who were interested or might be affected. Seminar speakers included those from private industry, the Johns Hopkins University, the Soil Conservation Service, and County agencies. Those who attended were developers and their engineers, construction superintendents, foreman and heavy equipment operators, consulting engineers, architects, County personnel, County Planners, representatives from the Highway Association, the Gas and Electric Company, the Telephone Company, in addition to Soil Conservation District people, and many others.

The wide public and private interest participation produced several significant results.

- (1) It introduced sediment control to many agencies before it was implemented.
  - (2) It served to involve and encourage private industry to develop their ideas with regard to sediment control.
  - (3) It provided ideas which proved to be significant in making a more workable program.
  - (4) It allowed for a smoother transition from the actual program on paper to the construction site.
10. Last but not least, the committee who officially prepared the program was continued so that they could evaluate its operation. Again, we think this is an extremely important part to consider with regard to the program's continuing success.

*One aspect is that*

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Soil surveys are providing valuable information for planning land use, development, and sediment control.

Modern soil surveys have been completed on about 6.3 million acres, or two-thirds of the Potomac's 9.4 million acres. In addition to this, many other individual properties have been surveyed to provide a basis for conservation planning on the urban and rural level.

A standard soil survey as outlined by the Erosion and Sedimentation Sub-Task Force program is needed for the entire basin. This basic information would help identify, for land use planning and zoning purposes, individual tract's suitability for agriculture, forests, housing, transportation, wetland wildlife, parks, and recreation.

Our technical help program to landowners and operators in the establishment of conservation measures is being provided through conservation districts in all parts of the basin. It is recognized that land treatment measures such as strip cropping, cover crops, terraces, and others familiar to you are very beneficial in reducing erosion and sediment production, while at the same time enhancing the landscape and providing food and cover for wildlife.

The recently updated CNI delineated 135<sup>small</sup> watersheds in the Potomac basin. That data indicated there are 57 watersheds in the basin with conditions justifying the installation of a small watershed project. The 57 include those completed, those underway, and the potential projects, all of which encompass about 4.6 million acres.



Within the basin the inventory, in terms of areas having a need for project measures to solve flood prevention-type problems, showed the following:

(1) Floodwater and sediment damage:

Agricultural land	-	228,000 acres
Urban land	-	22,000 acres

(2) Erosion damage: - 55,000 acres

In addition to the above, 12,000 acres are shown to have a need for project action to solve agricultural water management problems.

Under the Flood Control Act of 1944, USDA was authorized to carry out a program of waterflow retardation and soil erosion prevention for the upper Potomac River drainage, roughly above Front Royal, Virginia, and Hancock, Maryland. SCS has the responsibility for carrying out this program.

Measures are currently being installed in 12 subwatersheds in this area. Included are a combination of land treatment and structural measures for watershed protection, flood prevention, municipal and industrial water supply, recreation, and other purposes.

Under the Watershed Protection and Flood Prevention Act a program similar to that described above is being installed in 5 small watersheds in the lower basin and 10 are now in the planning and preplanning stages. Within the projects in operations, 85 reservoirs have been built in the authorized flood prevention area and in the lower basin. Several more are in various stages of construction.

Concern for man's environment ~~has~~ now a household topic for discussion.

"Environmental problems have become critical, and cooperation between all levels of government will be required in a massive effort to restore and maintain environmental quality. "

That statement, echoing one of our pressing national needs is from the foreword of the Community Action Guidebook for Soil Erosion and Sediment Control.

Many here were active in environmental matters long before the problem became one of general, popular concern. Consider:

- (1) the programs to control a reoccurrence of the dust storms of the thirties that deposited soil, blown off the Midwest, here in the Potomac basin;
- (2) conservation treatment to provide greater and sustained yields from farm and forest, and
- (3) watershed and flood control projects to (a) prevent floods that damage property, destroy lives and crops, and spread disease and filth; and (b) provide water for drinking, industry, and wholesome recreation.

Agriculture and forestry involve more land use and natural resources than any other segment of our society. Therefore, those so engaged have a great part to play in preserving and enhancing the quality of the environment.

Environment is not a fad!

On New Year's Day 1970, the President signed into law the National Environmental Policy Act. In so doing, he said,

"The nineteen seventies absolutely must be the years when America pays its debt to the past by reclaiming the purity of its air, its waters, and our living environment. It is literally now or never."

SCS is carefully analyzing its proposed projects in terms of their impact on the environment. These studies involve:

1. Impact of the proposed action on the environment
2. Adverse environmental effects
3. Alternatives to the proposed action
4. Relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity
5. Irreversible and irretrievable commitments of resources

In our regular conservation operations program we will provide assistance in development, such as special plantings on pipeline or utility rights-of-way, i. e., plantings to beautify the area and provide food and cover for wildlife.

USDA is currently working with the Water Resources Council in river basin studies in order to develop plans that will attain the multiobjectives of (1) regional development, e. g., to provide additional income to local residents; (2) environmental quality, e. g., visual; and (3) general well-being, along with the standard economic efficiency objective.

In order to improve our consideration of environmental matters, we are including the following items in the determination and design of projects:

1. Improving selection of projects and giving low priority to protecting flood plains not yet developed. Flood plains are often the last vestige of open space, and may be better suited to parks and recreation than to industrial development.
2. Considering channel improvement as a last resort. If it is a must, keeping it to a reasonable minimum, considering use of adjacent land, and short duration flooding that might be tolerated.
3. Giving full consideration to fish and wildlife resources.
4. Planning designs that are attractive and that conform to the natural landscape in addition to being "structurally sound." For example, the screening of some structural improvements by trees might be part of a project to maintain, as far as practical, the natural landscape.
5. Seriously looking for alternatives--flood plain zoning, flood proofing, or other flood plain management.
6. Planning for ways to mitigate damages to fish and wildlife.
7. Developing installation practices that reduce erosion and sedimentation during construction.
8. Replanning old projects, if appropriate.
9. Consulting with others, starting early, and continuing frequently.

This means with our own people, experts in other federal agencies and in state agencies. Also special interest groups and the general public.

Keeping ideas before the public for its information and consideration throughout the planning process.

The goal is to build a more prosperous and more attractive rural America with more rapid economic growth--higher per person and per family income--more nearly adequate community facilities--and a reversal of rural-to-urban migration of population.

To attain this goal requires the efforts, involvement, and commitment of residents living in the community assisted by public programs to:

1. Increase the income of rural residents and eliminate the many and complex causes of unemployment and underemployment.
2. Make a continuous and systematic effort to lift up those in greatest need, whether disadvantaged because of economic or social reasons.
3. Expand rural job opportunities primarily through encouragement by private enterprises.
4. Improve the living environment of the rural community.
5. Create a local "climate" in which the residents of a community through their leadership, determine and direct the development of their area.
6. Bring about a population and industrial dispersion beneficial to the entire Nation--rural and urban alike.

The rural development effort is an organized and systematic way for SCS to join with others (federal, state, local, and private agencies and/or

organizations) to assist rural citizens upgrade their community livability index by improving the:

Quality in the natural resource base to meet any foreseeable use or production needs.

Quality in the environment for the use and enjoyment of all people.

Quality in the living standard of rural families based on higher income.

Quality in rural communities to provide attractive, convenient, healthy, and rewarding places to live and work.

Our task will continue to change. For instance:

The report of the President's task force on Rural Development recommended "...accelerated annual appropriations to develop more small watersheds each year and to provide adequate funds to complete the projects within the estimated work schedule." The Task Force pointed especially to the need to expand supplies of water for municipal and residential purposes and enhance recreation in nonmetropolitan areas. It also recommended "...the prompt acceleration of the National Cooperative Soil Survey program until it is substantially completed; and also urged expediting the development of special purpose maps based on the detailed information in the Surveys."



Another indication of future emphasis is a change in the appropriation language for our Conservation Operations budget. Added to our list of necessary expenses under this item will be special measures for soil and water management...to control agricultural pollutants... " This expected change will reflect that control of pollutants from agriculture is inseparably related to conservation of soil and water.

Other important changes in direction and emphasis, designed to make our Service better able to play its role in the future include:

- Working more closely with state and local governments on conservation action on rural and urban land - A-95 etc
- Building a comprehensive system for monitoring resource conditions and developing a system for rapid storage and retrieval of resource data
- Making pollution abatement, and especially technical guidance in waste management, an integral part of our conservation programs
- Finding new approaches for dealing with stubborn and persistent erosion and sediment problems, including restoring surface-mined land
- Encouraging the dedication of areas with unique characteristics for agriculture, recreation, or wildlife use and
- Helping develop a stream classification system and standards for stream management.

Secretary Hardin, in USDA's 70 Yearbook, "Contours for Change" said "...As America continues to grow--much of this increase needs to take place outside the great metropolitan areas....It is imperative that the people of Rural America start making plans and decisions to assure that this development comes about in an orderly, healthy manner. City dwellers have an equal interest since a sound pattern of national growth can alleviate many of today's urban problems."

Accelerated land use and water resource management, along with sediment pollution control efforts, --as we have discussed today--in the Potomac River Basin will contribute in a forceful and constructive way to the quality of life for all Americans.

## CNI DATA

## Potomac Basin

Areas needing project action to solve nonagricultural water management problems:

	<u>Number of Areas</u>
Rural Water Supply	54
Municipal and Industrial Water Supply	68
Recreation	119
Fish and Wildlife	114
Water Quality Management	84