

Natural Resources and Housing Developments

I'm sure that every speaker here, and many of the audience, are well acquainted with my subject, "Natural Resources and Housing Developments." So I don't want to be like the man who drowned in the Johnstown flood and went to heaven. He thought he was an expert on floods, and he went around telling everybody how much he knew. Finally, the man went to Saint Peter and said, "Pete, I'd like you to get everyone in heaven together in a big convention so I can tell them all about my experience with floods." St. Peter thought a minute, then said, "Well, I can do that. But I hope you realize that Noah will be in the audience."

Some "Noah's" of urbanization are here today, so I won't say much about any topic other than the one I've worked at for over a quarter of a century.

Material for Norman A. Berg, Associate Administrator, Soil Conservation Service, at Environmental Housing Program, sponsored by Cooperative Extension of Herkimer and Oneida Counties. December 2, 1970

The wise use and management of natural resources is a red-hot subject today. Many Americans now realize what resource planners have known for a long time: that clean air, clear water and good soil are not everlasting, and that our environment can be degraded and misused on a massive scale. What we need today is not more land or water, but better management of the natural resources we already have.

My agency, the Soil Conservation Service, was raised and nurtured on the belief so well expressed by Dr. McHarg--that man must design with nature, for people. In its first years, the SCS brought in several ecologists, including Aldo Leopold, to help develop Service goals beyond the immediate needs to mend gullies and reduce erosion. In 1936, Leopold wrote: "Civilization is not...the enslavement of a stable and constant earth. It is a state of mutual inter-dependence and cooperation between human animals, other animals and plants and the soils, which may be disrupted at any moment by the failure of any of them. Land despoliation has evicted nations, and can on occasion do it again...It thus becomes a matter of some importance...that our dominion, once gained, be self-perpetuating, rather than self-destructive."

The interdependence of man and nature--and man and man--is
a core part of SCS philosophy.

The Service has worked with rural landusers for a generation--
and it's still a major job. But in recent years we have followed the
farmlands into town. As population increases, and cities expand onto
once-rural land, we receive more and more requests for help from nonfarm
landusers and planners.

These requests are often sparked by citizen cries of outrage
over soil and water misuse. People want new homes--but they do not
want the beauty of their area ruined. They want roads and shopping
centers, clean water and good waste treatment facilities, but they do
not want mudholes for lakes, or despoiled landscapes, as part of the
package. These citizens are saying, in their way, what Dr. McHarg says
~~more eloquently:~~ design with nature. Supply the human needs for
housing but do not, in the process, destroy the other human needs for
beauty and a feeling of space.

Good homebuilders know this. The NAHB "Land Development Manual" says:

"Shelter is man's prime environmental requisite; the key aspect in providing shelter is the land. As the density of population increases the wise use of land becomes most critical."

A major technique for better land use planning in urban areas is the multidisciplinary approach--a team effort with contributions from the engineer, sociologist, economist, biologist, housing and landscape architect and land and water specialist. These inputs should come early in the planning process.

Last spring, the State of New York's Executive Department, Office of Planning Coordination, and the Soil Conservation Service worked out a joint agreement designed to strengthen understanding and working relationships between the two agencies. I am told that Dave Brandon, the Director, Office of Planning Coordination, received some of his earlier experience as a planner here in Oneida and Herkimer.

The SCS interest, of course, is wise use of soil and water in suburbia and elsewhere. An important "tool" for this is the soil survey, for which SCS has major responsibility. Modern surveys cover about 43 percent of the contiguous United States, primarily the agricultural and urbanizing areas. About 20 million acres of New York State are mapped with modern surveys.

In your counties, about a third of the Herkimer soil survey is complete. The rest of the county, primarily the Adirondacks mountain area, will be mapped later.

About half of Oneida is mapped--a fourth with modern soil surveys, a fourth with earlier surveys still useful for homesite selection. The remaining land will be mapped later.

Your regional planning board has published interim reports for both counties on urban use of the surveys.

Many communities share the cost of soil mapping with the SCS. This gets vital resource information into the hands of landusers more quickly. Agreements for reimbursable funds for soil surveys totaled \$1,500,000 for fiscal 1971.

Communities in New York State have contributed more than \$700,000 to soil survey work in the past nine years. Herkimer was the first county in the state to contribute local money for its survey.

Soil surveys are not plans for land use. They help predict how soil will behave under different uses. They let you, the developer or city official, plan with more confidence that what you want, you will get. They can help in locating soils that are favorable for homesites or other developments based on such factors as slope, flooding or erosion potential, poor soil bearing qualities and seasonal wetness. They can help answer such questions as: Will the soil support your home foundations and curb and gutter work without special designs? Will on-site sewage disposal systems work? And, will basements be wet or houses slip because of poor soils?

The Maine Environmental Improvement Committee uses large inputs of soil survey information. Health and sanitation officials in West Virginia, Pennsylvania, New Hampshire and elsewhere use it in sewage disposal regulations, while Southeast Wisconsin regional planners estimate their 7-county soil survey will save people \$300 million in the next 25 years,

In housing

Of course, soil surveys cannot substitute for detailed, on-site studies at the exact location. But they do start engineers, developers and planners off on the right foot as to general location and other factors.

SCS provides many other kinds of help as well--with recreation sites, pond planning, controlling erosion and so on. Seven towns in Monroe County, New York, ask the SCS District Conservationist to look over the proposed erosion control methods of major construction projects. If these are unsatisfactory, new methods are then recommended. This particular district conservationist spends over half of his time on urban conservation problems.

It seems apparent to me the desire for better use of our natural resources has grown rapidly among citizens in the past few years. You don't have to be an expert to smell air pollution, see floodwater in your basement, or be depressed by the ugliness of land sprawl. Most men and women do not understand precisely how to work with nature, but they do understand why it must be done. These are the people who look to you

and me, and others in the resource field, for leadership and help in planning a better environment.

How, then, can the Soil Conservation Service help you in Herkimer and Oneida, as you preplan your resource uses? I'd like to illustrate this question and answer with some slides.

LIGHTS

- 1 The Soil Conservation Service can continue to provide soil survey interpretations for many kinds of landusers.
 - 2 This was an interpretation for one suburban developer. Different interpretations can help
 - 3 with homesite selection, road building, open space selection and so on.
 - 4 Surveys can give you advance warning of an area's flood potential,
 - 5 its water table, and whether wet basements will be a problem.
- This enables you to either relocate the homes on other nearby soils, or provide needed drainage facilities and home foundations.

6 Soil maps can indicate whether septic tanks, if they are necessary, will work.

7 Here's an unsuitable area in Texas, with very little soil. Septic tanks were used,

8 but they can easily contaminate water supplies.

9 This soil interpretation guide is for septic filter fields--the green, only slight limitations; the yellow, moderate; the red, severe. In general, this is not a good area for widespread use of septic filter fields.

10 Some parts of the country have shrink-swell soils that crack buildings
11 and cause other problems. In this new shopping center in Texas, the sidewalk and building have separated.

12 Electrolytic soils are a problem that can mean rapid deterioration of underground utility pipes. These men are digging out corroded pipe.

13 Some of it, rated for an 80-year life, was ruined after less than a year.

14 Electrolytic soils can be identified; a bar of magnesium called a
sacrificial anode can be wired to the pipe in danger areas; this will
corrode, leaving the pipe unharmed for a specified number of years.

15 Engineers in this area (Texas) say soils knowledge will save them
hundreds of thousands of dollars.

16 Soil slippage is another problem that can often be predicted

17 There goes the neighborhood

18 How's that for a backyard?

19 Severe shoreline erosion around Lake Michigan.

20 I doubt if this high rise will be amortized before it has to be abandoned

21 Surveys are sometimes used to indicate areas for sanitary landfills
that won't contaminate local water supplies.

22 Locating and developing landfill areas is a team job for people from
several fields.

23 SCS people can recommend plants and other vegetation for beauty and
erosion control qualities.

24 And, help to locate and develop community parks...

25 and recreation and wildlife areas.

26 Schools want help in finding good building sites...

27 ...and in developing outdoor nature areas...

28 ...for school children. This is becoming quite popular.

29 We help communities with mini-lakes and small watershed projects...

30 ...for flood prevention, recreation and, when needed, additional water
supplies.

31 Here's an SCS-designed pool in the new city of Columbia, Maryland.

The sediment comes from current upstream construction.

32 The beginning of a small community lake for Bedford, Massachusetts.

SCS helped in site selection and design.

33 Lake Needwood--a flood prevention and recreation lake near Washington, D.C.

34 This Kentucky watershed project had many local benefits, including
municipal and industrial water supply (Mud River)

35 This West Virginia project brought in new industries that
36 significantly boosted the local economy (Brush Creek)

37 Water pollution is a mutual concern of communities and the SCS...
38 ...as well as erosion and sediment, which can be major problems on
construction sites and elsewhere. Here are a few examples:

39 About 3,000 acres a day go from rural to urban use. In many cases,
little or no attention is paid to watershed problems.

40 A U.S. geological survey shows that peak discharge in runoff more than
doubles when 80 percent of the soil surface is made impervious.

41 More land damage

42 Roadside erosion (Alexandria, Va.)

43 School playground erosion

44 Sediment and erosion problems are expensive for everyone.

45 This Maryland builder put in costly drainage structures, but the soil
washed away, leaving them high and dry. He'll need extensive refill and
repair work before he can be ready.

Erosion and sediment damages the individual homeowner, who must pay for repairs

...the larger community, which must dredge reservoirs and lakes...

the small recreation seeker...

and everyone downstream. This is a sign in suburban Washington. (overlay)-

short pause for reading)

These are problems of soil and water use. What can be done?

A great deal. First, use the information available from SCS and other resource agencies. In the past year, SCS provided resource planning help to 635 units of government in New York State--in addition to its regular work with farmers, developers and other land users.

Second, avoid obvious problems, such as building on unprotected floodplains.

Floodplain and high water areas can be easily located on surveys.

Finally, once a good site is selected and land clearing begins, take steps to reduce sediment and erosion during and after building.

- 56 Incremental--or sectional--development helps.
- 57 On large construction sites, critical erosion areas can be reseeded to protect the soil before all building is completed. Some grasses give protection after 10 days.
- 58 This builder reseeded several acres while waiting for the financing to complete his apartment complex.
- 59 Jute matting can protect reseeded on critical areas.
- 60 The matting will rot away after the area is stabilized.
- 61 Straw mulch, blown on this slope, also protects reseeded areas.
- 62 Retaining walls can reduce erosion and runoff in some areas.
- 63 Rock or other rip-rap along streambanks can be effective.
- 64 Storm drainage installed prior to home construction helps.
- 65 A grassy terrace, as here, provides safer runoff in some areas.
- 66 Grass can grow even on slopes that carry a great deal of water, by using boards and making temporary terraces to hold soil.
- 67 Four weeks later, this site had a good stand of grass.

68 Sediment or settling basins are needed during large construction jobs to catch dislodged soil material before it leaves the property and turns up elsewhere.

69 This sediment basin area has totally graded lots in the background, stabilized by temporary seed and mulch. (Maryland)

70 In this development, storm runoff is caught and absorbed by a gravel drain, before the water can damage graded areas. Buried pipes carry water away. SCS helped in the design.

71 You can receive further help on this problem from the "Community Action Guidebook for Sediment Control," prepared by the National Association of Counties Research Foundation.

72 These are some ways to use soil and water in a better manner during and after construction work.

73 We all want to avoid this...

74 ...or this

75 ...or this.

- 76 We want cared-for farmlands...
- 77 attractive and livable cities...
- 78 ...and suburbs that meet our needs. We can have them with better care and planning of our land, air, and water.

LIGHTS

And now, if I may have the lights please, I'd like to conclude by telling you what one state is doing with its sediment problem, and a little of what all states can do for better use of open spaces.

Maryland has serious erosion problems. They are compounded by rapid urbanization in the Maryland-District of Columbia area. I see this twice a day as I drive to and from my work in the Capital. One tributary of the Potomac River carries 2,300 tons of sediment for each square mile of land under development, while a nearby tributary through rural lands picks up 146 tons for each square mile.

There are methods to reduce sediment during and after construction. Some local governments are taking an active interest in the problem.

The supervisors of Fairfax County, Virginia recently voted to require builders to submit, and carry out, county-approved conservation measures on construction sites. This applies to all subdivisions, all site plans filed with the county, and all other land areas of 5,000 square feet or more where problems have been reported.

Maryland now has the first state-wide sediment control law in the Nation. It requires builders to make sediment control plans, and have them approved by local officials, before they turn their first shovelful of dirt.

Because Maryland's program is new, I will describe briefly how it operates. State officials recommend that local sediment-control groups first decide how to approach the problem. Baltimore County did this by appointing a task force representing all concerned groups.

The task force decides the area they will cover--one county, several counties or a watershed. They investigate the legal basis for operation and enforcement and decide who will administer and evaluate the program. The task force approach should provide the flexibility to meet different conditions, but still accomplish the purpose of the program.

Finally, the Baltimore County sediment and erosion control officials provide a good training course for local developers. It lets them know about the program, how they can contribute and where to receive help and information on sediment problems and solutions.

Open space for beauty and access to nature is another growing concern of state and regional governments. Open space provides for recreation, works as a barrier between incompatible land uses, helps with air circulation, and may include groundwater recharge areas, parks, college campuses or other large institutions, or selected types of agriculture.

Good open space areas should be identified and preserved early. The SCS, through your local conservation district, can help planners identify the assets or limitations of their open space areas.

select
We can also help/suitable types of vegetation and control dune, roadside and streambank erosion.

Outdoor recreation areas are especially important in New York State, with its large population. Thousands of New Yorkers have developed recreation areas on their own farms and summer homesites.

New York State has more than 25,000 manmade lakes or ponds; many are used for swimming and almost half are stocked for fishing. We are pleased to help develop many of them.

Ponds or mini-lakes can have several purposes. One large housing development inside the city limits of Milwaukee, Wisconsin, is being built around 3 beautiful manmade lakes where you can fish and swim. Local SCS people who helped in the lake design also added flood prevention measures that will reduce peak floodwater discharge by an estimated 75 percent.

There's no reason why landscaping, small lakes and other so-called housing project amenities cannot also do a conservation and pollution control job. This is really designing with nature--working with our surroundings. I hope we all see more and more of this in our growth areas in the next few years.

Up and down the East Coast, from Florida to Maine, there are older large cities and urban areas in which environmental problems are so numerous and advanced that they are economically impossible to correct. About 95 percent of our population lives on 5 percent of our land.

And much of that 5 percent is on soils, or in areas, unsuitable for these uses.

We should not blame anyone for past mistakes. The science of good soil use, and our general economic and social understanding were not very well developed 60 to 100 years ago.

But this is not true today. In the 1970's, we do have extensive physical, social and economic information to help us in new urban planning. This generation can be blamed if we fail. This generation does not have the excuse of ignorance.

But we are not using all of the information available. In the field of resource use, I know, and you know, public "planners" and private developers at all levels who develop volumes of planning material without ever using a soil map for the area involved, or without planning for the inevitable drainage or erosion problems on land torn up for new uses.

We cannot correct some present errors. But there is no reason why new developments should not use new information to avoid the old mistakes.

If we can place people on the moon with our national space program,
we can certainly move into the 1970's with our space-on-earth, for
people, program.

I commend your present multicounty housing education program--

I hope it is copied by many other regions--and I assure you of the
--support of the Soil Conservation Service in your very fine work.

Thank you.