Organizing Watersheds in South Dakota

Joseph Paulson
This aerial photograph shows the largest of two flood prevention dams in the Scott-Creek Watershed in north Union County, South Dakota. It also shows needed water being held on the uplands by terraces.

Increasing soil organic matter and soil fertility are also effective parts of the program.

Farmers living in the Scott-Creek Watershed report: “Our watershed development, completed in 1955, had its first test this spring, 1960. It performed beautifully and in an efficient manner. Water was held in the soil and in the terraces above. The reservoir back of this dam was less than half full. The channel below the dam ran less than \( \frac{1}{4} \) full of water but it ran steady, day and night, for nine days. There was no flooding of adjacent land.

“Similar undeveloped streams and watersheds in this part of the country were all busy flooding the countryside.”

This picture shows the Big Sioux River in the area between Hawarden and Akron, Iowa. The picture was taken from the South Dakota side of the river looking toward Chatsworth, Iowa.

The center span of the bridge was washed out and the flooding river is almost a mile wide. Silt from the crop lands above has partly filled the river channel. Water and soil, much needed on the upland farms, are covering fertile valley farm lands and causing untold damages.

Water and soil must be carefully managed. The U. S. Department of Agriculture reports that one fourth (\( \frac{1}{4} \)) of the people in the United States are short of water, during the average year. The U. S. Department of Interior informs us that over 1100 cities and towns in this country have to restrict the use of water some time during the year.

The Watershed Program is a soil and water holding program, as well as a flood prevention program.

Cooperative Extension Service, South Dakota State College
U.S. Department of Agriculture
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Organizing Watersheds in South Dakota

By Joseph T. Paulson, Watershed Flood Control Specialist, and Fay Kerr, County Agent at large, Water Resources

Wherever you live, you are within a watershed. Your farm, ranch, home on a town lot, or your business in the city are all within the natural boundaries of some watershed. All the lands and waters of the nation are bounded by natural drainage divides.

A watershed is the entire drainage area that outlets through a single channel into a larger stream or river. A watershed may be large or small depending on the size of the drainage area. Scott Creek in Union County, the first watershed organized in South Dakota, comprises an area of about 3,000 acres. In contrast, the Brule Watershed that drains parts of Lincoln and Union counties contains about 145,000 acres.

Watersheds are of all sizes. A few acres in a farm field drain into a single gully or grass waterway, or many small watersheds together may cover nearly half a continent as do those of the Mississippi River and its tributaries.

Whatever its size, a watershed is a natural cradle for every raindrop which falls upon its surface. Well-managed watersheds capture the rain like great sponges and cause it to soak gently into the soil, to filter to the ground water table, to drain slowly to the brooks and larger streams, to flow as clear water to homes and communities.

Mismanaged, neglected watersheds reject the rain almost as fast as it falls. Runoff, laden with topsoil, rushes down through rills and gullies to muddy creeks and silt-choked rivers. Denuded hillsides and impoverished farms remain. Poor water supplies, increasing flood hazards, and pollution are the inevitable impact upon dependent communities.

Statistics show that in the United States about one-fourth of our people are short of water some time during the year. Statistics also show that fully 1,100 cities and towns have to restrict the use of water each year. Industries in many locations are short of water even though rainfall is quite heavy.

Federal and state watershed acts are intended to help you and your neighbors manage your watershed, conserve the soil, and make better use of the rain where it falls. The federal act provides for technical
and financial assistance, whereas the state act provides for necessary administration, operations, and management. The state act provides a taxing method so that landowners can, in a united way, meet their part of the financial and management obligations. The state act is, therefore, primarily an enabling act.

Benefits Under Public Law 556

Public Law 556 authorizes the U. S. Department of Agriculture, through its Soil Conservation Service, to join with local people in solving erosion, flood damage, and similar problems. This aid is channeled through established political sub-divisions of state government such as a Watershed District or a Soil Conservation District.

The U. S. Secretary of Agriculture is authorized to assist local organizations to prepare and carry out plans of improvement upon application by the local organization.

U. S. SECRETARY OF AGRICULTURE CAN:

1. Conduct investigations and surveys necessary to prepare plans for works of improvement.
2. Prepare plans and estimates required for adequate engineering evaluation.
3. Determine whether benefits exceed costs.
4. Cooperate and enter into agreements with local organizations.
5. Cover the entire construction cost of flood-water retarding dams, channel improvements, and other flood reducing structures.
6. Cover a part of the cost of other agricultural water management structures.
7. Permit non-agricultural water management structures to be built as a part of the watershed program (see "Additional Benefits").

See Section 3-Public Law 556.

THE LOCAL PEOPLE WILL:

1. Establish soil management and soil conservation practices on the land.
4. Agree to operate and maintain all structures and set up a taxing system to provide necessary funds therefore.
5. Acquire the needed water rights from the state before improvements are started.

See Section 4-Public Law 556.

A COOPERATIVE EFFORT

The watershed protection and flood prevention program is, as pointed out, a cooperative effort between the local organization and the federal government. It is a local undertaking with federal help, not a federal project with local help.

Public Law 556 places full responsibility on local people for starting watershed projects. The South Dakota Watershed Act gives local people the means of organizing a watershed district and fulfilling their part of the cooperative agreement. The Department of Agriculture helps only when the state approves an ap-
Here are seven men who worked together to form a watershed project in Marshall County. (Left to Right) Lorenz Fox, SCS technician; George Hilde, sub-contractor for concrete work; Wally Ochs, engineer; James R. Burke, contractor; W. W. Thrope, landowner; Alto Oland, chairman of board of managers; and Dick Dur-land, county agent.

application for federal help. This approval is provided in South Dakota by the State Water Resources Com-

mission.

WATERSHEDS ELIGIBLE FOR AID

A question often asked by land-
owners is: “Because a watershed is
a drainage area, can we organize
any drainage area to take advan-
tage of benefits under Public Law
566?”

(1) Watershed Problem Must Exist

To be eligible for benefits under
the Federal Law a watershed must
have a problem that can be largely
taken care of by soil and water con-
servation measures and works of
improvement.

The soil and water conservation
measures will vary with the slope of
the land and the condition of the
soil. Increasing the organic content
of the soil by working in stubble,
crop residue, and barnyard manure
and adding fertility to the land are
needed. Contour farming, terracing,
and grassed waterways are also
needed. These practices hold soil
and water on the land.

Works of improvement include
measures, such as dams and other
water retarding structures, levees,
floodways, channel improvement,
gulley stabilization, road and grade
stabilization, and others.

(2) Definite Objective Essential

A definite objective is essential
before organizing the people for ac-
tion in a watershed. The federal law
requires that a watershed must have
a flood or water management prob-
lem that causes damage on more
than one farm or ranch before fed-
eral cooperation can be requested.
The benefits to local people from the watershed development must be greater than the cost of the entire project to the federal government. It should be made clear that the watershed program is a water holding program. It is also a soil stabilization program. The two jobs are accomplished largely by the same practices.

**ADDITIONAL BENEFITS**

Watershed groups are organized primarily to advance soil and water management and to reduce flood damages. They may, however, be organized for a combination of purposes, such as developing water for irrigation, storing water for cities, and similar purposes. In these cases the federal government will provide funds to cover the entire cost of the flood reduction measures and will share cost in the agricultural water management work.

**Water for Cities and Towns**

If a municipality wants to make use of a flood-water dam for adding to its water supply, the city must pay its part of the cost of the dam.

The division of payments between the city and the federal government will be worked out by the watershed district Board of Managers in consultation with federal representatives. This determination will be made on the basis of the division of the use of the structures for city water supply and flood reduction purposes.

**Water for Game, Fish, and Wildlife**

Under Public Law 566, as amended by Public Law 85-865, a local watershed organization is given an opportunity to include measures for fish and wildlife development in multiple-purpose watershed projects. In South Dakota the Department of State Game, Fish and Parks is invited to participate actively in project plans so that their part of the program can be properly developed. The purpose of this cooperative effort is to improve the habitat or environment for the breeding, growth, and development of fish and wildlife.

Measures that will provide private fish, wildlife, and recreational benefits are not eligible for federal assistance.

**Technical Help**

The federal government, under Public Law 566, will provide technical assistance, such as engineering when requested, for purposes other than flood protection. This means that the main purpose of the project and any additional purposes can be coordinated as a unit and made to work in an effective manner.

**Assistance Under ASC Programs**

Financial assistance to farmers in performing effective practices for watershed development and improvement is available under the conservation program administered by the Agricultural Stabilization and Conservation (ASC) committees. These are the Agricultural Conservation Program (ACP) and the Conservation Reserve (Soil Bank).
This assistance is given in the form of federal cost-share payments for the performance of approved conservation practices. Cost-share rates vary from about 50% to not more than 80% of the average cost of performing the practices. The principal types of practices for which cost-sharing is available may be classified under the following five categories.

**PERMANENT COVER**

This group includes long-term seedings of eligible grasses and legumes, strip cropping, and the planting of trees and shrubs.

**IMPROVING COVER**

The practices in this group include pasture improvement, shrub control, contour furrowing, and forest stand improvement.

**WATER CONSERVATION**

The practices included under this heading are sod waterways, field borders, terraces, diversions, erosion control dams, farm drainage systems, irrigation work, and spreader systems. Responsibility for the technical phases of most of these practices has been assigned to the Soil Conservation Service.

**TEMPORARY COVER**

Temporary vegetative cover for prevention of erosion can be provided by seeding approved summer or winter cover crops.

**erosion prevention**

Practices for the prevention of wind and water erosion include stubble mulching, contour farming, and other protective tillage operations in serious wind erosion areas.

Nearly all of the practices described above are extremely valuable aids in preventing loss of soil and water resources. Farmers who are interested in receiving federal cost-sharing for any of these practices should inquire at their local county ASC offices before starting performances of the practices. In recent years program procedures have been streamlined so as to permit early disbursement of the cost-share payments. This is of great assistance in speeding up the entire conservation effort.

Sometimes two or more farmers may wish to install an erosion control structure or some other good practice which will benefit all of their farms. This can be done under what is called a pooling agreement. Pooling agreements should be used to the fullest extent possible in the proper development of a watershed project. In planning for a complete and orderly program of watershed development these smaller projects have an important place along with the larger structures and installations.

**Steps to Take**

Landowners who are interested in receiving benefits under the watershed program should contact their county Extension agent and soil conservationist. The county agent can give valuable information on the steps necessary in organizing a Watershed District.

The Soil Conservationist, the Soil Conservation District supervisors,
and the ASC committee members can give valuable information on the problems in the watershed. These men can also be of great help in working out a solution to the watershed problems.

The county agent and Soil Conservation District supervisors can recommended that a preliminary survey be made by representatives of the Soil Conservation Service working with local sponsors and interested agencies. This survey will help determine the feasibility and the practicality of the watershed project before an application for assistance is prepared.

**SECURE FLOOD DAMAGE INFORMATION**

If the watershed project looks feasible, the first step to take will be to secure flood damage information from the local people. Forms are available as an aid in securing this damage information. Local leaders from the damaged area can best secure this information.

**APPLICATION FOR ASSISTANCE**

The application for assistance should be filled out by the local Soil Conservation District supervisors as sponsors of the watershed project. (See the Soil Conservation Service for the forms.) Other groups interested in the project may also support and sponsor the application. The application should be mailed to the State Soil Conservation Committee, State Capitol, Pierre, South Dakota. The committee will review the application, and if acceptable will authorize a field examination to be made.

**FIELD EXAMINATION**

The field examination will be scheduled by the State Committee, which will invite interested agencies and others to participate. The group making the field examination will prepare a report of their findings. This report will provide added information on which the State Committee can base its recommendation to the State Water Resources Commission so that the application be given state approval for planning assistance by the Soil Conservation Service. The approved application is sent to the State Conservationist for transmittal to the Administrator of the Soil Conservation Service, Washington, D. C.

**PLANNING ASSISTANCE**

After receipt, review, and acceptance of the approved application, the Service will authorize planning assistance.

The Service, through its watershed work-plan-party and local technicians, will work with the local people (sponsors) in developing a preliminary work plan. This will then be reviewed with the sponsors and other interested agencies before the development of the final work plan. The final work plan is then approved and signed by the local sponsors and the Soil Conservation Service.

**OPERATIONS OF THE PLAN**

After the approval of the plan by the local people and if federal funds are available, the Administrator of the Soil Conservation Service will authorize the plan for operations. This is the work stage. During the
work stage additional soil conservation practices will be established on the land and the planned structures will be built.

TIMING OF DISTRICT ORGANIZATION

Timing between work plan development and operations and the organizing of the watershed district is most important.

The ground work for organizing the watershed district should get under way early in the process of preparing the watershed application. Much of this work can be done by the local sponsors while meetings are held to prepare flood damage data, making of the field examination, and early stages of work plan development.

The organization of the watershed district should be completed by the time the plan is ready for final approval. On this basis, the Watershed District Board of Managers can, along with the other sponsors, sign the Work Plan. When the Board of Managers signs the Work Plan it accepts the responsibility to establish the planned practices, and construction in the watershed.

STEERING COMMITTEE

If the project looks practical to the local people and the State Watershed Party, the next step should be to appoint a steering committee. The county agent and soil conservationist can be of great help in selecting a committee that represents the different interests in the watershed. The upland farmers and ranchers may have interests that are different from the lowland or flood plain men.

The steering committee assisted by the county Extension agent should inform the people in the watershed of the benefits and responsibilities connected with the project. The committee should also work with the Soil Conservation Service planners and engineers in setting up a sound plan of improvements for the watershed. The committee should really take the lead in initiating a program or Work Plan for their watershed. The Work Plan is a plan designed to help solve the problem in the watershed.

The next step for the steering committee will be to cooperate with the Soil Conservation District supervisors in organizing the watershed into a watershed district under the State Watershed Act. The county agent can furnish forms and give information as to procedure. The Board of Managers, who are to take general charge of construction, operations, and maintenance of the watershed, must give local approval to the Work Plan (Project Plan). (The Board of Managers are chosen in the process of organization.) Following local approval, state approval will be necessary from the State Water Resources Commission (Section 22). Final approval of the watershed project will be necessary from Washington.

Provisions of State Watershed Act

The major provisions relative to organizing and financing a watershed district are discussed briefly in
This is a watershed detention dam in Union County. Pond and land treatment are shown in the background of terraces on pasture.

this circular. The section number in the state act is referred to for your more complete study.

The South Dakota Watershed Act provides for organizing a watershed district that becomes a legal subdivisions of state government (Section 12). The Watershed District managers have authority to operate, maintain, finance through taxation, and otherwise manage the watershed district in a manner that will insure that the development will serve the purpose for which it was established (Section 13).

A watershed district organization may be initiated by the steering committee within the district. The committee should circulate a petition among the landowners of the watershed requesting organization. The petition should give the boundaries of the watershed, the purpose of organizing, the number of managers wanted, the names of those who will manage the district until the next annual meeting and election, and other needed information (Section 5).

On being properly signed, the petition is filed with the local Soil Conservation District supervisors who will have the County Auditor determine whether or not all the signers are landowners. The man who pays the taxes on the land and buildings is considered to be the owner for this purpose (Sections 1 and 5).

After the county auditor's determination, the Soil Conservation District supervisors will proceed to
complete the organization (Sections 5-1 to 12).

TWO METHODS OF ORGANIZING

There are two methods of organizing a watershed district. The steering committee in cooperation with the Soil Conservation District supervisors should decide which method they want to use. It is possible to start organizing under one method and complete the job under the other method. (See page 2 Ext. B of the suggested petition form in the Instruction Book) (Section 5, 1).

Organizing by Petition and a Vote

If 25% or more, but under 60% of the landowners in the watershed have signed a petition, the Soil Conservation District supervisors will hold a hearing on the question of organizing the district and, if favorable, conduct a referendum on the question (Sections 5, 6 and 7).

If 60% or more of the landowners voting in the referendum vote in favor of the district, the supervisors will then hold a hearing and, if favorable, may declare the watershed a sub-division of State Government. This method eliminates the need for a referendum (Section 5).

The steering committees in cooperation with the Soil Conservation District supervisors in this state have been inclined to organize watersheds by the petition method. The ideas expressed on this subject are that it gives the steering committee members an opportunity to interview all or nearly all of the landowners in the watershed. The interviews, they say, have been of value to the landowners and also the steering committee member. It also eliminates the labor and time necessary to hold an election.

A hearing is necessary (Section 6) following either method of organizing before a watershed can be declared a sub-division of State Government (Section 12).

WHEN TO ORGANIZE

Although not required by the State Watershed Act, it is suggested that the steering committee start organizing the watershed into a watershed district under the State Act as soon as the preliminary survey shows the project to be practical. The committee should ask the Soil Conservation District supervisors to proceed with the details in organization. It takes time to organize and put in final form a watershed district under the State Watershed
Act. Completing the organization so the elected managers can take over the legal part of the work on time is essential.

The South Dakota Watershed Act as amended, 1959, gives the local people the necessary authority to cooperate with the federal government in watershed improvement, in contracting for construction, and in operating and maintaining the watershed. The Act is also the authority for the local people to secure the land, easements, and rights-of-way necessary for construction.

If the organization work is not started early and completed on time, delay in construction may be experienced.

If the Board of Managers hurries its work, it may fail to properly contact the people in the watershed and thus fail to determine the people's interests. It should be made clear that the Board of Managers in a watershed acts for the people in that watershed.

BOARD OF MANAGERS’ AUTHORITY

As soon as a watershed district is declared a sub-division of state government, the three or five managers named by the petitioners and who were appointed by the Soil Conservation District Supervisors, will take charge of the affairs of the district. The managers will hold office until the next annual meeting and election, when the managers will be elected by a vote of the landowners in the watershed district (Sections 13, 17, and 18).

When a watershed district is declared a sub-division of state government, the managers will have the duties and powers defined by the Act.

Ad Valorem Tax

Among other powers, the managers may levy an ad valorem tax in the entire watershed, not to exceed 1 mill, on the landowners' land and buildings for a period of not to exceed 2 years (Section 13).

Long Range Finance Plan

The managers are required by the State Watershed Act to set up a financing plan which may include general or special benefit taxes to raise money needed to operate and maintain the watershed project throughout its life. The plan must be presented to the State Water Resources Commission for its approval (Section 23 and 27). After approval by the Commission the plan must be presented to the watershed landowners in a referendum for their approval. A 60% favorable vote is required for approval (Section 23).

It should be made clear that the federal government furnishes all money for construction of flood control works of improvement and for engineering and other technical services.

It should be made equally clear that it is the duty of the local people to furnish the land easements and rights-of-way. It is also the duty of the local people to operate and maintain all structural works of improvement in the watersheds.

Estimated Operation and Maintenance Costs

Generally the operations and maintenance costs are estimated on basis of the construction cost to
the federal government. The annual operation and maintenance cost of flood retarding dams and other water control structures are generally estimated at 1% of the construction cost. The annual operation and maintenance of an improved channel is estimated at 2% of the construction cost.

The arrangements for and costs of easements and rights-of-way are the responsibilities of the landowners and the Board of Managers.

The managers receive no compensation for their services, but they are entitled to reimbursement of expenses, including travel (Section 15).

The state is anxious that an adequate financing plan be provided so the local people can properly carry out their part of the program. When sufficient money is available in a reserve fund to cover the estimated expenses for 1 year in advance, the local tax can be reduced accordingly. No greater tax can be levied against the landowners than that voted in by the landowner. After the finance and tax plan has been voted in, and after the necessary easements and rights-of-way have been secured, construction work may be started in the watershed (Section 23).

**ORGANIZING WATERSHEDS BY TRIBUTARIES**

A watershed district may be organized in units or by combining tributary units in a watershed. The purpose of this method of combining or annexing units is to make it possible to organize a large watershed in sections. The section where landowners show the greatest interest, where they have established the needed soil and water conservation on the land, and where organization and adequate financing is practical should be set up first. Other sections can join later.

It will be necessary to have the Work Plan completed for the entire watershed and an adequate finance and taxing plan voted in by landowners of the first unit before construction work can be started. The purpose of the "unit procedure" in establishing a watershed is to make it possible to demonstrate the benefits, and also the local obligations, that a watershed improvement program has to offer. This unit plan will be particularly valuable in a large watershed (Section 13).

**Maintenance and Conservation Needed**

Land management and soil conservation practices which prevent erosion, improve soil conditions, and make more efficient use of water help prevent silt damage to watershed structures.

Before a dam or other flood-retarding structure can be built under Public Law 566, farmers above those structures must take effective steps to stabilize their soil and hold water on the land.

Even after the structures are in use, maintenance is necessary. Outlets must be kept free from trash. Grass cover on dams must be protected. Repairs to dam, outlets, and
fences must be made when needed. Lack of maintenance would actually mean wasted time and money in building the project. With proper maintenance and silt control on the uplands the project will function for many years.

Cities and Towns May Cooperate

A municipality may become a part of a watershed district by an authorized official of the governing board of the municipality casting one vote for the watershed organization. After the organization is completed, the municipality may contract with the Watershed Board of Managers to furnish payments for maintenance and other purposes in the watershed as compensation for benefits received. The watershed managers do not have the power to levy a tax or special assessment within a municipality (Sections 10 and 23).

The Board of Managers does have the authority to contract with the federal government, this or other states, corporations, and other institutions (Section 29).

Watershed Loans

Local organizations can obtain watershed loans to plan and carry out plans to protect and develop the land and water resources in small watersheds.

The loans are available from the Farmers Home Administration, an agency of the U. S. Department of Agriculture.

WHAT LOCAL ORGANIZATIONS ARE ELIGIBLE?

Eligible local organizations may include a soil or water conservation district, irrigation district, drainage district, flood prevention or control district, municipal corporation, or similar organization. The local organization must lack sufficient funds and be unable to borrow the needed funds at reasonable rates and terms from any other established source. It must have authority under state law to obtain, give security for, and raise revenues to repay the loan and to operate and maintain the facilities financed with the loan.

HOW MAY LOAN FUNDS BE USED?

Generally, loans can be made for purposes consistent with the improvement of, utilization of, or protection of the soil and water resources within the watershed.

WHAT ARE THE TERMS?

Loans are scheduled for repayment within the shortest period consistent with the borrowers' abilities to repay. The repayment period will not exceed the period permitted by state law for levying assessments against each tract of land to pay for the bonds or other commitments.

The interest rate is set at the beginning of each fiscal year and applies to all watershed loans made during the year. For example, the rate for the fiscal year ending June 30, 1961, as set by the formula in the law, is 2.632%. Once the interest rate
is set on a loan, it will not change during the life of that loan.

SECURITY FOR LOANS

Watershed loans will be secured in a manner which will adequately protect the interests of the Government, and there must be evidence that income will be sufficient to meet the scheduled payments. Usually security that can be offered includes general obligation bonds supported by tax liens, bonds repayable from revenues pledged for repayment, or other evidence of debts secured by liens or property and by pledges of revenue.

For additional information regarding watershed loans, see the local FHA County Supervisor.

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