

Watershed and Flood Prevention Operation Program Guide



USDA-NRCS Arkansas

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Introduction

The Watershed Program (Watershed Protection and Flood Control Act, Public Law 83-566) and (Flood Control Act of 1944, Public Law 78-534,) helps communities and rural areas reduce flooding and sedimentation, provides water supplies and recreational areas and creates thousands of acres of wildlife habitat. The Act was passed on August 4, 1954, when Congress recognized the serious natural resource and economic damages suffered in our nation's watersheds from flooding and sedimentation. The Act has been amended several times to address a broad range of natural resource and environmental issues. The Act provides assistance to sponsors who develop projects on watersheds up to 250,000 acres (391 sq. miles). No structure providing more than 12,500 acre-feet of floodwater detention capacity or more than 25,000 acre-feet of total capacity may be included in the watershed plan.

The Watershed Program has existing authorities to deal with a wide range of natural resource issues, including flood control, water quality, sediment and erosion control, water supplies and water based recreation. It is a proven, cost-effective program with thousands of success stories. Watershed projects protect lives and property and reduce flood damages. They also play an important role in protecting resources vital to the agricultural economy as well. The Program is federally-assisted, but locally planned and implemented. Local project sponsors use local resources to maintain constructed project measures.

Watershed Projects

Watershed projects are planned and implemented by local people who serve as project sponsors, with assistance from the USDA Natural Resources Conservation Service. The projects are authorized and funded through the Watershed Protection and Flood Prevention Act (Public Law 83-566) or the Flood Control Act of 1944 (Public Law 78-534).

Since 1948, over 2,000 watershed projects, covering 160 million acres, have been organized by local project sponsors with aid from NRCS. There are watershed projects in all 50 states and the Caribbean. Over 11,000 flood control dams have been built. Most of these 11,000 dams were built primarily for flood control, but they also provide many other benefits. The watershed program has been amended several times over the past 60 years and has the flexibility that allows local people to address a myriad of natural resource problems such as animal waste management, water quality protection and improvement, irrigation water management, fish and wildlife habitat, recreation, and municipal and industrial water supplies. Watershed projects make up a \$15 billion national infrastructure that provides \$2 billion in annual benefits to over 48 million people.

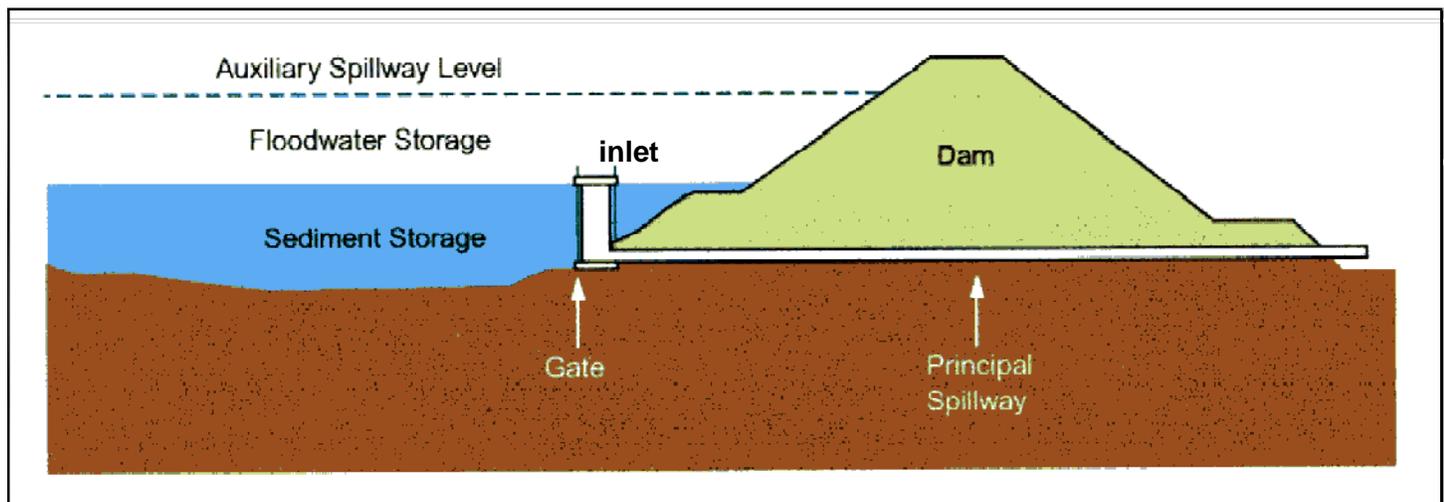
How Watershed Dams Reduce Flooding

The concept of watershed projects is simple. A series of watershed dams are built across small tributaries to larger streams. The dams' temporary store flood water after rain storms and slowly release it over a period of several days through a pipe in the dam. This reduces the amount of water

that reaches the main water course after a rain, reducing flooding. Land treatment programs in the watershed help control erosion, which reduces the sediment that flows into the streams and lakes.

Watershed projects usually consist of earthen dams constructed on tributaries to a river. The number of dams in a watershed varies depending on the size of the watershed. Some projects do not have dams, but use other conservation methods to meet the needs in a watershed such as erosion control, animal waste management, and water quality practices.

Cross Section of a Watershed Dam



This cross section of a dam shows the concrete inlet in front of the dam connected to the principal spillway pipe (extending through the dam). When water reaches the opening at the top of the inlet it spills over and goes through the pipe controlling the level of water in the lake. Some inlets also have openings in the side of the tower. A slide gate, located at the bottom of the inlet tower, can be open to lower the water level for maintenance and repairs. The diagram also shows the auxiliary spillway level. Water will flow through the earthen spillway at the end of the dam to safely convey large flows to avoid water going over the top of the dam, which could dam failure. The sediment storage area on the cross section is what makes up the permanent pool of water. Over the life time of the dam this area will usually fill with sediment (usually 50 to 100 years).

Definitions

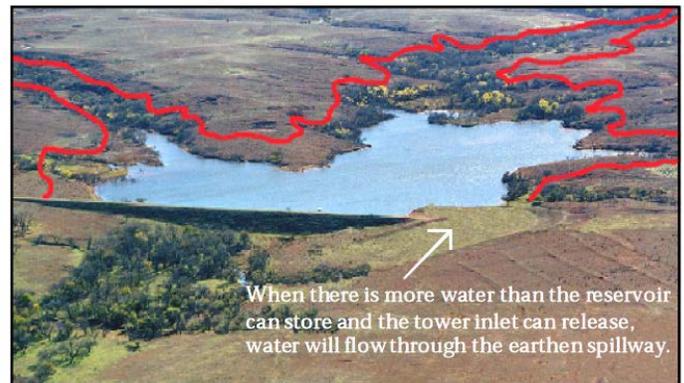
- The top of dam is the lowest elevation along the centerline of the dam. This does not include any elevations within the auxiliary spillway.
- The auxiliary spillway is the spillway designed to convey excess water through, over, or around a dam. The auxiliary spillway is usually an excavated channel through one or both of the abutments.
- The control section in an open channel spillway is that section where accelerated flow passes through critical depth.

- The impoundment area is the portion of the reservoir allotted to the temporary storage of floodwater. Its upper limit is the top of dam elevation.
- Total Capacity is defined as the total volume of space available for water and sediment upstream of a dam below the elevation at which discharge begins in the primary auxiliary spillway.

Flood Storage

The red line on this photo indicates the extent that water can back up in the flood pool upstream before it starts flowing through the earthen spillway. This is where flood water is stored while it is slowly released through the principal spillway pipe.

It is important to keep the inlet tower clear of debris and to keep the earthen spillway clear of any structures such as fences and buildings. Disrupting the flow of the spillway could result in dam failure.



Project Sponsors

Watershed project sponsors represent the local interest in NRCS assisted watershed projects. Sponsors of projects must be a unit of local government such as a conservation district, a city, or a county government agency. Sponsors request assistance from NRCS in addressing flooding or other natural resource issues and enter into an agreement with NRCS which may include watershed planning, engineering design and financial assistance for the project.

Project sponsors agree to carry out specific parts of the project and are responsible for such things as:

- Obtaining easements and required permits
- Conducting public meetings
- Securing and providing the local share of funds to install works of improvement
- Securing and providing funds for ongoing operation and maintenance of constructed structures such as dams
- Monitoring easement encroachment
- Developing and updating emergency action plans
- Working with regulatory agencies (state dam safety agency)
- Scheduling and conducting regular inspections of dams
- Maintaining relationships with landowners
- Working with NRCS at all levels to maintain relationships and the partnership that is essential to the watershed program
- Working with regulatory agencies (Arkansas Natural Resources Commission (ANRC), Arkansas Department of Environmental Quality, (ADEQ), U.S. Corp of Engineers, etc.)

Once the project is completed, there will be an agreement for operation and maintenance of constructed structures such as dams. This agreement outlines the responsibilities of the sponsor for maintaining proper operation of the structure. This agreement should be reviewed periodically to ensure these responsibilities are being met.

Sometime project sponsors have to deal with problems or situations they might not feel qualified to handle. The good news is that there is help available. Usually the first contact for assistance is with the local NRCS district conservationist. The NRCS can provide technical assistance in engineering and agronomy. If the local NRCS personnel cannot provide the requested assistance they can often obtain help from specialists in the NRCS state office or direct the sponsors to other sources of help.

Obtaining Easements

An easement is a legal document granted to the Sponsor of the watershed project, which covers the impoundment area and the auxiliary spillway(s) return flow to the waterway downstream from the dam. The actual easement elevation varies with each watershed structure. Easements can reference the top of dam elevation, the auxiliary spillway control section elevation, or the auxiliary spillway control section elevation plus flow depth. Also, some easements contain special provisions. Easements belong to the Sponsor. The Sponsor is responsible for proper operation and maintenance of the dam and issuing or denying requests for changes within the impoundment area. The Sponsor should notify the NRCS when proposed changes are planned that will have an impact to the functioning and maintenance of a watershed dam.

Development activities that should not be allowed in areas adjacent to the easement, impoundment area, auxiliary spillway or dam include:

- Any activity that decreases flood storage volume such as any modification to the principal spillway riser that would increase normal water surface elevation.
- Erection of structures, buildings, signs, fences, or landscaping features on the dam or in the auxiliary spillway which would interfere with the proper functioning of the structure or inhibit maintenance activities such as annual mowing of these areas.
- Docks, picnic tables or other potential floating items should not be permitted unless anchored in such a way that they cannot float loose with fluctuations in the lake level.

Answers to frequently asked questions concerning watershed project sponsors' responsibilities in federally assisted projects are below. The questions and answers refer to watershed dams that include earthen embankments, inlet towers, principal spillway pipes and auxiliary earthen spillways; which are the majority of dams that NRCS assist on.

Q. Watershed projects are sponsored by one or more local organizations. Who can serve as a sponsor and what powers do they need to receive federal assistance?

A. Project sponsors must be entities of state or local government or a tribe. Sponsors of a project that includes structural or non-structural measures or both must have the power of eminent domain so that they may acquire real property and water rights needed for the project. They must also have the authority to levy taxes or have an alternative means of financing their share of the cost of the project as well as the operation and maintenance expenses. They must assure NRCS that they will use these powers and authority to receive federal assistance.

Q. After the planned dams are constructed, what are the major responsibilities of the sponsors?

A. Sponsors are required to carry out operation and maintenance inspections and needed O&M work, monitor easement encroachment, comply with state regulatory requirements, perform emergency actions, and conduct surveillance during storm events.

Q. How long do sponsors need to comply with operation and maintenance requirements?

A. The operation and maintenance agreement requires O&M for the life of the flood control project which is usually the designed life or expected life span of the dams. But flood control dams will need to be maintained as long as they exist.

Q. What is the design life (or expected life span) of flood control projects?

A. It depends on the plan and design. Dams built for flood control usually have a life span of at least 50 years and no more than 100 years. Current projects such as the Big Slough and Departee Creek Watershed Plans specify 100 year design lives. Watershed work plans will have this information on each dam. Most dams, with adequate operation and maintenance, will continue to function well after the end of the designed life.

Q. What is an Operation and Maintenance Agreement?

A. It is a legally binding contract with the federal government in which the sponsors agree to operate and maintain installed measures in a watershed project such as dams, wetlands, irrigation measures and other conservation practices.

Q. What is Operation?

A. Operation is the administrative and management activities necessary to keep the dam safe and functioning as planned.

Example: Releasing water downstream in compliance with a state water quality agency directive.

Q. What is Maintenance?

A. Maintenance is recurring activities necessary to keep a dam in a safe and functioning condition.

Examples: Removal of trees on dam or in spillway; fertilization of vegetation; repair of failed components; and repair of damage caused by flooding or vandalism.

Q. What is Rehabilitation?

A. Rehabilitation is all necessary work to extend the service life of a dam and meet applicable safety and performance standards.

Example: Rebuild a flood control dam with additional 50- year service life that meets current dam safety standards.

Q. What if there is a problem with a dam due to an error or misjudgment by NRCS in original design or in installation?

A. After proper documentation, NRCS may correct such problems at the original cost-share rate. This is called remedial work.

Example: Installation of a rock plunge basin to correct a design deficiency.

Q. How often are sponsors required to inspect dams?

A. This is spelled out in the operation and maintenance agreement. In most cases it will require an annual inspection as a minimum. Inspections should also be conducted when heavy rains occur that might cause damage or spillway flow.

Q. Where do sponsors get training on how to properly inspect dams?

A. Requests can be made to NRCS for training. The National Watershed Coalition conducts workshops on inspection of dams and operation and maintenance. State dam safety agencies may also help.

Q. What if people move in downstream from a dam that was planned and designed as a low hazard dam and the state dam safety agency reclassifies it as a high hazard dam?

A. Sponsors can remove the dam, rehabilitate the dam relocate the homes, or do nothing. If they do nothing they must be aware of the consequences. NRCS and State dam safety agency should be contacted before actions are taken.

Q. What are the consequences of doing nothing in the above situation?

A. The state dam agency could issue an order to require the removal of the dam or upgrade it to meet current standards. If the dam failed there could be loss of property and lives and serious damage to the land and water resources downstream. Sponsors may be liable for damages if action is not taken. It would be important for sponsors to keep a good record of operation and maintenance and actions taken to ensure the safety of the dam and the area downstream.

Q. At the end of the period covered by the Operation and Maintenance agreement—what happens?

A. When the dam has reached the end of its design life and the O&M agreement expires, it may be interpreted that there is no federal investment left to protect. Therefore, the sponsor may have complete authority over it and responsibility for it.

Q. Can local sponsors modify or remove a dam before the end of the period covered by the operation and maintenance agreement?

A. Approval from NRCS and many times the state dam safety agency is required before any proposed modification or removal of a dam.

Q. Can local sponsors remove or modify a dam after the operation and maintenance agreement expires?

A. NRCS approval is not required; however state dam safety agencies or other agencies may have requirements that affect such a decision. Easements may also have constraints on what can be done.

Q. How can sponsors prevent homes and businesses from being constructed downstream from low hazard dams to avoid the cost of upgrading them when they are reclassified to high hazard?

A. Enact zoning ordinances that prevent development within breach inundation areas. The entity to enact ordinances could be municipal or county governments as allowed by state law. If zoning is not a viable option, making the breach inundation area maps public information can help discourage building in these areas. Sponsors could also purchase downstream easements to control future development.

Q. Do sponsors have to comply with dam safety requirements that may have been enacted since the dam was built?

A. Yes, many state dam safety regulations consider the project sponsors as “owner of record”. However, state regulations differ, so sponsors need to check their state rules.

Q. What are common actions needed to comply with dam safety requirements?

A. State regulations vary, however most have requirements for periodic inspections that are more intense than normal operation and maintenance. Some require inspections by a professional engineer. Most also require the development and annual review of an emergency action plan.

Q. What is an Emergency Action Plan (EAP)?

A. Project Sponsors are required to work with local officials to develop an EAP on each dam where failure may cause loss of life or as required by state and local regulations. This plan considers all potential emergency situations, both natural and man-made, and identifies appropriate responses. The EAP assigns critical roles including surveillance, notification, and evacuation as well as a map identifying the dam break flood zone, evacuation routes and critical contact list.

Watershed Operations Funding

Watershed and Flood Prevention Operations funding is available pending the following:

- Annual Congressional appropriations
- State and national priorities
- Acquisition of land and water rights
- Obtaining required permits
- Availability of local funding for specific project solutions
- Completion of structural, agronomic and vegetative designs for project measures
- An approved Operations and Maintenance agreement between NRCS and the project sponsor that ensures the project land treatment and/or structural solutions will be installed and maintained as specified in the agreement.

Funding Your Plan

When a watershed plan calls for flood damage reduction:

- USDA pays all engineering and construction costs.
- Local sponsors provides all land rights and easement costs.
- USDA provides up to 50 percent cost-share funds for needed land treatment for water-quality purposes and up to 65 percent cost-share for erosion and sediment control.
- USDA provides engineering services and up to 50 percent of construction costs for irrigation, drainage, public recreation, and fish and wildlife habitat development.
- Under certain circumstances USDA will pay up to 50 percent of the cost for landrights and minimum basic facilities for public recreation for public fish and wildlife habitat development.
- All other cost, including the costs for municipal and industrial water supply and energy, must be paid by sponsoring local organizations.

Contact information

To learn more about NRCS's Watershed Protection and Flood Prevention Program, please contact your county local NRCS Field Service Center. There is one in almost every county in the state. If you need further information, you can contact Arkansas NRCS state and technical staff.

Arkansas NRCS State and Technical Staff Contacts

Name / Title	Location	Office Number	
Walt Delp, P.E. State Conservation Engineer (SCE)	Little Rock State Office	501.301.3141	
Cubie I. Harris State Hydraulic Engineer	Little Rock State Office	501.301.3135	
Todd Stringer Project Engineer - NW Area	Fort Smith Technical Service Center	479.431.3275	
Zach Dalmut Agricultural Engineer - South Area	Pine Bluff Field Service Center	870.727.6138	
Caleb Henry Civil Engineer - NE Area	Jonesboro Technical Service Center	870.819.4602	

More questions and answers about The Watershed Program for Aging Dams are in following attachments:

- Attachment A - Frequently asked questions concerning Implementation of Watershed Rehabilitation.
- Attachment B - Frequently asked questions concerning the Rehabilitation of Aging Dams.

Attachment A



Natural Resources Conservation Service

Aging Dams

United States Department of Agriculture

June 2003

Frequently Asked Questions

Implementation of Watershed Rehabilitation

The Watershed Rehabilitation Amendments to the Watershed Protection and Flood Prevention Act (PL 83-566) authorizes the USDA Natural Resources Conservation Service (NRCS) to work with local communities and watershed project sponsors to address public health and safety concerns and potential adverse environmental impacts of aging dams. The following provides answers to frequently asked questions concerning implementation of watershed rehabilitation.

Q. Who may submit a request for assessment of an existing dam to determine if it is eligible for rehabilitation assistance?

- A.** At least one of the project sponsors with Operation and Maintenance responsibility for the specific dam.

Q. How can a request for assistance for rehabilitation be made?

- A.** Submit Form SF-424 "Request for Federal Assistance:" additional information must be attached to the application. All current sponsors of the watershed project must sign the application.

Q. How is the State Dam Safety Agency involved in evaluation of an application?

- A.** Information received from the State Dam Safety Agency must be attached to the application for assistance. The State Dam Safety Agency will also be requested to provide input in evaluating the applications received. This information will be considered in setting funding priorities.

Q. What standards will be used if a dam is upgraded to meet current criteria?

- A.** NRCS and State Dam Safety criteria will be used, which ever is more stringent.

Q. How will ranking of applications be accomplished?

- A.** The NRCS State Conservationist assigns a ranking priority for each application received in their state after evaluating the following:
- Probability of failure considers the design features and existing condition of the dam. A "failure index" is computed; the higher the index, the greater the probability of dam failure.
 - The consequence of failure considers factors such as potential for loss of life, loss of lifelines (transportation, water supply, utilities, etc), environmental factors (threatened or endangered species, contaminated sediment, riparian area, wildlife, wetlands, etc.) adverse impacts on cultural resources, historic preservation and adverse economic impacts due to loss of flood control.
 - Input from the State Dam Safety Agency.

Q. What plan document is needed for watershed rehabilitation plans?

- A.** The planning document will generally be a supplement or revision to the current watershed work plan. In the case of Pilot watersheds, Resource Conservation and Development and some PL-534 projects, existing plans may not be available and a new plan may need to be prepared.

- Q. What alternatives are considered during the planning of a rehabilitation project?**
- A.** Planning is completed using established procedures for watershed planning. Minimum alternatives to be considered include: no action, decommissioning, rehabilitation to meet current criteria, and the National Economic Development Plan. Also, nonstructural alternatives will be considered (relocation of residences, easements or other controls on downstream development, etc.). Economic, social, and environmental impacts are evaluated.
- Q. Can individual components of an existing dam be replaced or modified to eliminate an immediate problem even though the rehabilitation project will not extend the design life of the entire dam beyond its original life?**
- A.** No, the statute requires extension of the service life of the dam.
- Q. Will relocation of downstream dwellings be an eligible component of a rehabilitation project to avoid need for costly upgrade of a low hazard dam to high hazard criteria?**
- A.** Yes, if relocating is part of the most cost-effective alternative selected by sponsors.
- Q. Can a rehabilitation project consist of only relocating downstream hazards and enacting controls on future development within the breach inundation area without doing any work on the dam itself.**
- A.** No. The statute requires that rehabilitation must include extending the service life of the dam and meet applicable safety and performance standards. Therefore, the completed rehabilitation project must include work necessary to either remove the dam or assure the dam meets all current standards and will function for at least another 50 years.
- Q. Can purchasing development rights or conservation easements to control future downstream development be considered as a part of the rehabilitation project?**
- A.** Yes. Purchase of conservation easements and development rights can be used to avoid the need for upgrading of the dam to high hazard criteria. Since they are considered land rights they must be secured by the sponsors as part of their 35% share of costs.
- Q. Can a dam be decommissioned or removed as part of a rehabilitation project?**
- A.** Yes, in fact decommissioning must be an alternative considered in evaluation of each rehabilitation plan.
- Q. If other natural resource needs are addressed during the rehabilitation project (municipal water supply, wildlife and wetland habitat enhancement, etc.) what federal cost-share will be applied to the additional costs to address these needs?**
- A.** The law authorizes 65% federal cost-share for rehabilitation measures only. If other natural resource needs are addressed, the federal cost-share for other project purposes will be according to the Watershed Protection and Flood Prevention Act (PL-566) provisions. Other programs can also be used.
- Q. Are local communities, farmers, and ranchers required to install soil and water conservation practices in the watershed above each of the dams?**
- A.** Conservation practices are required to be installed within the drainage areas above the dams to protect them from excessive soil erosion and sedimentation. Many of these conservation practices are also aging and must be rebuilt. A minimum of 50 percent of the needed conservation practices and management techniques must be implemented prior to a dam being constructed or rebuilt.
- Q. What is included in the total cost of a rehabilitation project?**
- A.**
1. Acquisition of land, easements, and rights-of-way. This may include:
 - The area needed for construction of the dam and the resulting reservoir.
 - Access route for operation and maintenance.
 - The breach inundation area to control future downstream development.
 - Other areas required to ensure proper functioning
 2. Project administration.
 3. Technical assistance, if provided by the project sponsors.
 4. Costs of construction and/or relocating, removal, or flood-proofing of at risk property in the breach inundation area.

- Q. Can conservation easements or floodplain easements for the downstream breach inundation area be purchased using other federal programs such as the Wetland Reserve Program and Emergency Watershed Program?**
- A.** Yes, provided the applicable program eligibility criteria are met.
- Q. What is the federal cost-share for rehabilitation projects?**
- A.** Federal funds are limited to 65% of the total rehabilitation costs, but shall not exceed 100% of the actual construction costs.
- Q. Who covers the remaining costs?**
- A.** Local project sponsors are responsible for funding the remaining 35 percent of the project. These funds may include cash or "in-kind" costs for the value of land rights, project administration, and other planning and implementation costs associated with the project.
- Q. Can the entire sponsors' contribution of 35% come from in-kind contributions?**
- A.** Yes.
- Q. Will the cost of NRCS staff time be considered a part of the "total cost" of the rehabilitation project?**
- A.** No.
- Q. If sponsors provide technical assistance (using either their own forces or acquired professional services) can the cost of these services be considered part of the "total cost" of the rehabilitation project and be credited to their 35% cost-share?**
- A.** Yes, if it is documented in a Memorandum of Understanding and NRCS agrees that it is an eligible "in kind contribution."
- Q. If the project sponsors hire an engineering firm to plan, design, or provide other technical assistance prior to selection and funding of the planning of the project, can the cost of these services be credited to the local 35% cost-share?**
- A.** Yes, if it occurred after November 9, 2000, it is documented in a Memorandum of Understanding, and NRCS agrees that it is an eligible "in-kind contribution" that should apply toward the 35% local cost-share requirement. The sponsor will be informed that there is no guarantee on funding of the project, the priority of the project, or that the alternative being considered on will actually be selected; therefore, the contributions may not actually be credited.
- Q. Will the value of the current land rights be credited as a local in-kind contribution for the rehabilitation project?**
- A.** No. The value of the current land rights may be credited only when the original land rights expired at the end of the original evaluated life of the project. Otherwise, only the value of land rights in addition to those acquired for the current project will be used.
- Q. Are there costs that are not considered part of the "total project cost"?**
- A.** Yes; the cost of all permits and acquiring of any mineral rights are the responsibility of the project sponsors and are not included in the total cost of the project nor can they be credited to their 35% cost-share.
- Q. Who is responsible for operation and maintenance of the rehabilitated dam?**
- A.** The watershed project sponsors are required to sign an agreement committing them to operate and maintain the rehabilitated dam for the evaluated life of the project (usually 50 to 100 years).

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Attachment B

June 2003

Frequently Asked Questions

Rehabilitation of Aging Dams

The Watershed Rehabilitation Amendments to the Watershed Protection and Flood Prevention Act (PL 83-566) authorizes the USDA Natural Resources Conservation Service (NRCS) to work with local communities and watershed project sponsors to address public health and safety concerns and potential adverse environmental impacts of aging dams. The following provides answers to frequently asked questions concerning the rehabilitation of aging dams.

Q. How many dams have been constructed with the assistance of NRCS watershed programs?

- A.** More than 11,000 dams have been installed in 47 states since 1948. The three states where watershed dams are not located: Delaware, Rhode Island, and Alaska.

Q. Where are these dams located on the landscape?

- A.** Typically, watershed dams are located on drainageways that are generally dry or have very little flow except following rainstorms. Very few dams are placed on larger drainageways that actually flow year-round.

Q. What is the typical size of these dams?

- A.** Generally, watershed dams are between 25 and 60 feet in height. These dams create lakes that range in size from a few acres to several hundred acres. The lakes created by these dams typically hold between 100 and 5,000 acre-feet of water. They can temporarily detain as much as several thousand acre-feet of floodwater before it is slowly released downstream after a rainstorm.

Q. What materials are the dams built with?

- A.** Most dams are built with compacted earth with metal or concrete pipes that draw down water that is temporarily detained behind the dams after storms.

Q. What benefits do these dams provide?

- A.**
- Flood control—by temporarily detaining runoff that has flowed to the dam and safely releasing it downstream through a pipe through the dam.
 - Improved water quality—by settling out contaminants and sediment in the reservoir, thus protecting downstream streams and rivers.
 - Irrigation water supply—by storing the water during rainy seasons for use by communities or agricultural irrigation later in the year when it is needed for crop production.
 - Drinking water—by storing water in the reservoir for use by municipal and industrial entities.
 - Fish and wildlife habitat—by improving wetland and vegetative habitat that creates better shelter and food sources.
 - Habitat for threatened and endangered species—by creation of special features to enhance and protect threatened and endangered species.
 - Wetland habitat—by creating vegetative riparian areas along the upper reaches of the reservoir.
 - Restoration of riparian habitat—by providing protection of downstream areas that promote vegetative growth and improvement of the riparian areas.
 - Public recreation—by providing a source of quality fishing, hunting, picnicking, etc.

Q. How do these dams help prevent floods in downstream areas?

A. Runoff from large storms is temporarily stored upstream from the dam and slowly released through a pipe in the dam.

Q. What level of flood protection do most dams provide?

A. Most dams provide protection of downstream areas from storms that occur less than once every 25 years.

Q. What happens when a greater storm event occurs?

A. Each dam is designed with an auxiliary spillway constructed around one end of the dam that safely conveys excess flow around the dam, thus protecting it from overtopping and failure.

Q. How long were the dams designed to function?

A. The majority of the 11,000 dams were designed with a 50-year design life.

Q. How old are the watershed dams?

A. The average age of the 11,000 watershed dams in the nation is 35 years old. Over 170 dams are more than 50 years old. Within the next 10 years, more than 3,000 dams will reach 50 years old.

Q. What happens when a dam reaches the end of its designed life span?

A. Time takes its toll on dams. Reservoirs fill with sediment, metal and concrete deteriorate, land use conditions upstream from the dam change and increase the volume of water being delivered to the site, and many do not meet current dam safety requirements.

Q. Have any of the dams built under the Watershed Program ever failed?

A. To date, no dams have failed that have resulted in loss of life or property. However, some have had significant problems that have been corrected before a catastrophic failure or tragedy has occurred. These occurrences will undoubtedly increase as the dams get older.

Q. Who planned, designed, and constructed the dams?

A. Local communities, with technical and financial assistance from the Natural Resources Conservation Service (formerly the Soil Conservation Service).

Q. When a dam reaches the end of its life span, what options do local communities have?

A. Dams can be rebuilt or rehabilitated so they can function for a long time in the future (50 years or more). General options include raising the dam to provide additional storage or dredging the sediment and replacing metal components. In some cases where flood control is no longer needed downstream, the dam can be removed and the site restored to natural conditions.

Q. Who is responsible for the dams?

A. Most of the dams are located on private land. Watershed project sponsors have easements to construct, operate and maintain the dams. These project sponsors are responsible for the functioning and safety of the dams.

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