III. Chapter 3 Iowa's Nonpoint Source Management Program

If nonpoint pollution, by its very nature, comes from a variety of sources, so does Iowa's effort to address the issue. Rather than having a single, all encompassing program, nonpoint pollution is addressed through a wide array of programs representing a broad spectrum of partnerships, resource interests, and areas of expertise.

While agriculture is not the only source of nonpoint pollution in Iowa, it is definitely the major source and the one providing the biggest challenge to address due to the sheer magnitude of the industry. Given the magnitude of Iowa's agriculturally related nonpoint pollution problems, it's not hard to see state efforts to address these problems have historically been underfunded, making the funding and other resources provided by the various partners even more important.

Harder to accurately measure, but also extremely valuable to the overall cooperative nonpoint effort, is the diversity of interests represented by the various partners. It could be said everyone contributes to nonpoint pollution, therefore everyone must be part of the solution. Incorporating so many different partners into the nonpoint program allows citizens to understand the impacts of nonpoint pollution from the standpoint of their own interests, boosting awareness of the issue over a wider segment of the population.

At the core of Iowa's nonpoint pollution efforts is the Nonpoint Source Management Program administered by the Iowa Department of Natural Resources using Section 319 funds from the federal Clean Water Act. Several very basic and primary themes define the overall philosophy of this program, including:

- all of the projects funded be geared toward an end result of improvement to water quality, and
- funding from the program be used to support and augment a strong local commitment to watershed improvement. In many instances, the 319 program provides seed money and technical expertise to get a project successfully started, with the intent the project will continue even after the initial 319 funds are used.

Iowa's 319 nonpoint program works closely with the state's Water Protection Fund administered by the Division of Soil Conservation, Iowa Department of Agriculture and Land Stewardship (IDALS), and the Environmental Quality Incentive Program administered by USDA's Natural Resources Conservation Service (NRCS).

The Water Protection Fund (WPF) provides funding support to water quality projects sponsored by county soil and water conservation districts (SWCDs). Criteria used in the selection of projects for funding include the importance of the resource to be protected, the nature and extent of the water quality problem, and the overall cost effectiveness of the project. The goal of this program is to protect Iowa's surface water and groundwater by supporting projects developed through locally led processes initiated by SWCDs.

WPF funds are received from Iowa's Resource Enhancement and Protection Account (REAP) and are part of the soil and water enhancement account which receives 20% of the total REAP appropriation. Of that, fifty percent is directed to water quality protection projects. Through 1998, $7.6 million has been allocated through the program.

The Environmental Quality Incentives Program (EQIP) is a USDA conservation cost-share program designed to encourage and support voluntary conservation of natural resources on private agricultural lands. It provides technical assistance, cost-share and incentive payments, and education to producers who enter into 5-year contracts based on conservation plans. These funds are often used in conjunction with 319 and WPF water quality projects as incentives for private landowners.

Programs which directly or indirectly assist in controlling nonpoint pollution in Iowa include:

A. State and Federal Agencies

1. Iowa Department of Natural Resources

a. Section 319

Section 319 was added to the Clean Water Act in 1987 to support state and local nonpoint source (NPS) pollution control efforts. The Environmental Protection Agency (EPA), through the Section 319 program, provides grant funds to states to implement NPS pollution control programs and projects.

In Iowa, the designated lead agency for the 319 program is the Iowa Department of Natural Resources (IDNR). The IDNR has received Section 319 funding annually since FFY90. While a portion of Iowa's funding supports program administration and implementation activities conducted by IDNR staff, the majority is used to support 3 to 5-year projects conducted by cooperating agencies such as universities, other state agencies, organizations such as the Iowa Farm Bureau and Trees Forever, and SWCDs. Projects funded with 319 funding include NPS information and education programs, demonstration of innovative and alternative Best Management Practices (BMPs) for controlling NPS pollution, and implementation of NPS controls in priority lake and trout stream watersheds.

Due to the predominance of agriculture in Iowa and the resulting impact of agricultural NPS pollution on Iowa's water resources, NPS control projects are primarily aimed at preventing and reducing agricultural pollutants. However, IDNR has also funded several projects that solely address urban concerns or include an urban component, if such is a concern in a targeted watershed. Projects that show a partnership of multiple local, state, and federal agencies, as well as private entities, are strongly encouraged. In addition, all projects must include an information and education component, and the use of new and innovative BMPs is encouraged.

A basic philosophy of the Section 319 program is that projects be based on a strong local commitment and include local funding or support of local groups. Section 319 funds are often

considered as “seed money” to get a project off the ground with the expectation the project will continue after the initial 319 funds are gone. For these projects, Section 319 funding is intended to provide an awareness of the NPS problems and an initiative for implementing solutions.

In recent years, funding awarded IDNR under the 319 program has ranged from $1.96 million in FFY96 to $2.39 million in FFY98. For these years, about 31% of the funding was used to support statewide NPS information and education activities, implement generally small-scale NPS control activities conducted directly by IDNR staff, and administer Iowa’s NPS program. An additional 11% was used to support monitoring activities designed to measure the water quality changes resulting from implementation of BMPs in targeted watersheds, and to support wetland and trout stream restoration activities. The remaining 58% was used to support a variety of NPS pollution control activities and projects conducted by other agencies and organizations. Of this funding, the majority (about 74%) went to the Division of Soil Conservation (DSC), IDALS, to support NPS pollution control projects underway in a number of Iowa lake and stream watersheds. DSC, in turn, then enters into agreements with county soil and water conservation districts to utilize these funds to support locally developed watershed projects to protect important Iowa lakes, streams, and groundwaters.

Due to a significantly increased federal appropriation, for FFY1999 the IDNR received nearly $4.57 million in Section 319 funds. Of this funding, half was subject to the same funding requirements and restrictions as in previous years. The remainder could only be used to support implementation of NPS pollution controls in 303(d) listed waters and other high priority waters as identified in Iowa’s Unified Watershed Assessment Report. Iowa expects similar or increased funding in future years, depending on federal appropriations. For FFY2000 and future years, IDNR expects to use at least 50% to 60% of it's Section 319 funding to support projects for priority waterbodies, as defined above.

A joint application process is used to obtain NPS project applications for funding consideration under the 319 program (administered by IDNR) and the state Water Protection Fund (administered by DSC/IDALS). This process includes review and ranking of all applications by an interagency review committee, with IDNR and DSC making final funding decisions for their respective programs. Many of the watershed projects selected for funding receive a combination of Section 319 and state Water Protection Funds, as well as funds from other agency programs and from private entities.

Iowa's Section 319 program priorities to be utilized are as follows:

1. Lakes – The 118 significant publicly owned lakes currently listed in Appendix 9.
2. Streams – The 25 coldwater streams currently listed in Appendix 10.
3. Other Waters that meet all of the following:
    - The water body (surface water or groundwater) must be publicly owned and be an important local, regional or state resource.
    - Available information must show the waterbody is being impacted or threatened by pollution from controllable nonpoint sources (to include waters on the state's 303(d) list)

- The project plan must show implementing nonpoint controls will significantly reduce pollutant levels to the waterbody and doing so must provide important public benefits.
- Adequate financial and other resources must be available to implement the control project.

Waterbodies from the following categories that meet the criteria of the Other Waters (#3 above) will also be considered priorities:

1. Municipal wells*
2. Surface water supplies drawing from surface reservoirs and river intakes*
3. Groundwater protection projects addressing contamination by ag-drainage wells and/or sinkholes
4. Ongoing agricultural and urban NPS projects that are making significant progress in addressing nonpoint problems and can demonstrate a need to extend or expand the scope of the project
    * Public water supplies that can demonstrate a need for protection or improvement as a result of Source Water Assessment and Protection Programs or Wellhead Protection plans.

The 1998 Iowa Unified Watershed Assessment, Restoration Priorities, and Restoration Action Strategies (UWA) was developed and submitted to EPA and USDA in response to the Clean Water Action Plan announced on February 19, 1998. The Iowa UWA identifies the watersheds needing restoration and those needing preventative action to sustain water quality, (Appendix 3).

As was recommended by the UWA guidance, Iowa evaluated the state's 56 watersheds based on eight digit HUCs. According to Iowa's UWA, all 56 watersheds were placed in Category I, Watersheds in Need of Restoration, with further classifications of Priority 1, 2 and 3. This ranking will be considered by Iowa in the selection of projects to be supported by Section 319 funding. Projects which address the priorities identified above and are located within Priority 1 HUCs, will be given priority for Section 319 funding over similar projects located in lower priority HUCs. However, Iowa may deviate from the UWA watershed priorities in selecting projects for funding, when such deviation is justified based upon the nature and severity of the water quality problems being addressed, the quality and potential for success of the project application received, the 303(d) listing of waters, other priorities identified previously, etc. The Section 319 priorities have also been incorporated into other Iowa natural resource protection programs (EQIP, WPF, etc.).

The Clean Water Action Plan encourages states to work with local communities, the public, and federal environmental, natural resource, and land management agencies to develop strategies to restore watersheds that are not meeting clean water and natural resource goals. The Clean Water Action Plan further recommends that, for those watersheds identified as having the greatest need for restoration, Watershed Restoration Action Strategies (WRASs) should be developed. WRASs will spell out the most important causes of water pollution and resource degradation, detail the actions that all parties need to take to solve those problems, and set milestones by which to measure progress. In preparing a WRAS, EPA recommends the following be identified:

* public outreach methods,
* monitoring and evaluation activities,
* specific water quality problems,
* a watershed coordinator/evaluator,
* schedule for implementation, and
* funding needs.

In the past, the application process was driven by local initiation and interest in specific projects. As targeting of priority waterbodies and implementing water quality projects to address these priorities becomes more critical for the state, additional assistance will be provided to sponsors for the development of projects in these areas. Funding for additional DSC staff has been approved to provide assistance to develop project applications, and DNR will receive state funding in SFY01 to provide available GIS data to project sponsors for use in evaluating watershed problems and developing applications. NRCS will play a more active role in project development and implementation as well as developing program neutral planning. Increased efforts will require an even greater cooperative effort among agencies, as well as among non-governmental organizations, in order to improve coordination and reduce duplicative efforts. The state will encourage development of projects and will work with local sponsors to address priority waters, such as those included on the 303(d) list and other priorities.

Applications submitted for proposed Section 319 projects are required to include detailed information regarding the nonpoint sources of contamination impacting the water resource to be protected. The information required in an application is provided in more detail in Appendix 4, Iowa Application Procedures, in addition to the evaluation criteria for Section 319 project applications. Comparing the information required by Iowa's application procedures against the WRAS, the similarities of the two can be noted. In some cases, a Section 319 project workplan will satisfy all the requirements for a WRAS. In other cases, such as for larger watersheds with multiple projects, an 'umbrella' WRAS may be appropriate. Iowa will continue to use the format of the Application Procedures, and prepare WRASs for projects requiring such. (An example of a WRAS summary is included in Appendix 4).

The federal Clean Lakes Program was established in 1972 to provide financial assistance to states for projects to protect and improve the water quality of publicly owned lakes. In Iowa, the early projects consisted of primarily dredging to extend the life of lakes. As the program progressed, Iowa became one of the first states to consider nonpoint source control efforts in projects. Iowa projects included: Lake Manawa, Green Valley Lake, Union Grove Lake, Black Hawk Lake, Little Wall Lake, and Lake Aquabi. As the Clean Lakes Program is no longer funded at the federal level, EPA has provided guidance to allow states to provide Section 319 funds for activities which were previously covered by the Clean Lakes Program.

Water quality projects funded by Section 319 are evaluated for success based on periodic reporting and final project reports required by IDNR. Included in such reports will be an identification of practices installed (feet of terraces, acres enrolled in management practices, number of basins, etc.), number of participants and results of participant surveys, water quality monitoring results, reductions in nutrient or pesticide usage, and estimated reductions in amounts

of sediment or animal manure reaching the water body. In addition, as the projects are intended to be locally-driven, a significant measure of success is the local support provided (in terms of both dollars and involvement) and a long-term local commitment to the project subsequent to Section 319 funding expiring.

b. Section 401 Water Quality Certification

Section 401 of the Federal Clean Water Act required that before a federal permit or license can be granted, the state water quality agency must certify that the proposed action will not violate state water quality standards. The IDNR uses the Section 401 certification provision in combination with its water quality anti-degradation policy to maintain the physical and biological integrity of its waters.

For streams and lakes, this involves protecting and maintaining existing lake bottom and stream bed characteristics, water velocity, channel alignment, aquatic habitat, and existing species. Projects requiring federal permits or licenses are reviewed for potential impacts. If the review indicates a proposed project will violate the antidegradation policy, certification is denied or granted with requirements for mitigation.

For water classified as high quality or high quality resource waters, mitigation is typically not allowed and water quality certification is typically denied for any project having an adverse impact. Currently, approximately 1,750 miles of Iowa streams are classified as high quality or high quality resource waters.

c. Total Maximum Daily Loads (TMDLs)

Section 303(d) of the Clean Water Act requires that all waters of a state that are found to be impaired and whose impairment will not be corrected through existing pollution control programs be listed on the state's 303(d) list. Waters placed on the 303(d) list must be prioritized and a schedule developed for establishing TMDLs for each waterbody and pollutant.

A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. This calculated maximum amount must consider all contributing point, nonpoint and natural background sources of a single pollutant, and include a margin of safety and a consideration of seasonal variations among other requirements.

Iowa's 1998 303(d) list identifies 157 waterbodies. Development of five TMDLs for three of the 303(d) listed waterbodies has just been initiated by EPA. IDNR has submitted a proposed schedule for development of the remaining TMDLs to EPA.

A component of an acceptable TMDL is an implementation plan. As IDNR develops TMDL implementation plans, changes to nonpoint source programs can be expected. 303(d) listed waters and TMDL implementation plans are one of the priorities for nonpoint source protection and funding opportunities. However, the TMDL program is still in the developing stages and the full impact of this program to the state's nonpoint source efforts has not been determined.

d. Combined Sewer Overflows (CSO)

The U.S. EPA has requested that each state develop a strategy to regulate the discharge of pollutants from combined sewer overflows. The IDNR developed a CSO strategy that was approved by the U.S. EPA on September 21, 1991. Grant funding to implement the program has also been approved by the U.S. EPA. In 1994, EPA issued a revised guidance for CSO programs and IDNR is currently considering how to incorporate this guidance into the NPDES permit process However, no time line has been established, and due to limited resources and legal authority, little progress has been made.

The CSO strategy includes a survey of municipalities to determine each CSO location, it's design capacity, and the development of a database to record all information acquired by the inventory. Current water quality standards and stream use designations will be evaluated to determine possible revisions in effluent monitoring and limits needed to address CSO water quality impacts. A field survey of all CSO locations will be conducted to collect effluent and stream data to identify possible water quality, aquatic biota, and human health impacts from these discharges. Rules regulating CSO discharges will be drafted and implemented. NPDES permits for municipal facilities with CSOs that have been identified as having water quality violations will be modified to include monitoring requirements, technology and/or water quality-based limits.

The objectives of the CSO strategy are to (1) assure that if CSO discharges occur, they result only from precipitation events; (2) facilitate separation of sanitary and storm water flows; (3) bring all wet weather CSO discharge points into compliance with technology-based requirements of the Clean Water Act and state water quality standards; and (4) minimize impacts to water quality, aquatic biota, and human health from wet weather CSO flow.

e. Agricultural Drainage Wells

State legislation adopted in 1997 requires IDNR to implement rules requiring the closing of some ag-drainage wells and the removal of surface intakes and sealing of cisterns on others. Any landowner planning to continue using an agricultural drainage well is required to apply for a continued use permit by July 1, 1999.

To date, nearly 75 percent of the estimated 290 ag-drainage wells in Iowa have been addressed in some manner. Of these, 141 agricultural drainage wells have either received continued use permits or have permits pending. Most of the others have either been closed or are planned for closure after the development of suitable drainage alternatives.

f. Animal Feeding Operations

Iowa's water pollution control programs generally consider large animal feeding operations as point sources of pollution, while smaller operations and animal waste disposal are considered to be nonpoint sources. Iowa first adopted rules to control pollution from animal feeding operations in 1969. With revisions, Iowa's rules now generally incorporate and go beyond those adopted by EPA. They establish minimum waste control requirements for all types of animal feeding operations, and require certain manure management standards be utilized if the operation is to obtain construction and/or operation permits from the Iowa Department of Natural Resources. Land disposal requirements and guidelines are also included.

In 1995, the Iowa Legislature adopted HF519, which required IDNR to adopt rules requiring construction permits for certain confinement feeding operations using an anaerobic lagoons or earthen manure storage basins. Permits are also required, at larger animal numbers, for construction of formed manure storage structures, and storage sites for dry manure. HF519 also required management plans for large-scale livestock operations, with these plans limiting manure application based on not exceeding the nitrogen needs of the crops being grown. HF519 also included several manure application requirements, some applicable to operations not requiring a plan, including minimum separation distances from certain designated areas and requiring that manure application not pollute state waters.

In 1998 the Iowa Legislature passed HF2494, which revised Iowa's laws governing manure management. Among its provisions, HF2494 expanded the state's manure management plan requirements to require that plans from all large confinement operations built or expanded since May 31, 1985, be submitted to IDNR for approval. In addition, HF2494 requires that commercial manure applicators and confinement site applicators become certified under a certification program to be established by IDNR. Certification can be achieved by either attending a specified number of hours of training annually or by passing an exam, and must be renewed annually for commercial applicators and once every three years for confinement site applicators. Iowa State University Extension is developing the training materials and conducting training workshops, under contract with IDNR.

g. Floodplain Management

Under Iowa's floodplain management program, various development activities within the floodplains of rivers and streams are regulated. Included are channel changes and the construction of dams.

Channel changes (typically the straightening of a channel) can have a significant adverse impact on stream habitat due to the reduction in channel length and the elimination of the pool-riffle habitat found in natural channels. Various studies have documented the severe impact channel straightening can have on the numbers and diversity of aquatic species. The IDNR's floodplain management program limits the amount of channel straightening that can be done on most streams and rivers and essentially prohibits channel changes on Protected Streams, as defined by

IAC, Chapter 72. A Protected Stream is designated as such for the primary purpose of maintaining the natural state of the stream.. Currently, the IDNR has designated 246 reaches of streams and rivers throughout Iowa as Protected Streams, including the coldwater trout streams of northeastern Iowa. For streams that are not Protected Streams, proposals for channel changes are reviewed to insure the proposal will not have an adverse impact on habitat. The review process often results in requirements for mitigation or, in some cases, disapproval of the channel change.

Dams can affect both the habitat and hydrology of a stream. The pool formed by a dam can inundate natural channel habitat, and the flows downstream of a dam can be affected by the storage and evaporation of water behind the dam. The vast majority of dams constructed in Iowa are small dams located across small upland streams or drainageways and have little or no adverse impact on habitat or flow. Large dams or low-head dams on large rivers can have significant impacts, and the IDNR uses its floodplain regulatory powers to insure that the construction or modification of large dams or low-head dams will not have adverse impacts. Requirements may include provisions for passing low flows through the dam, provisions for passage of fish, or provisions for maintaining adequate levels of dissolved oxygen downstream of a dam.

h. Household Hazardous Material (HHM)

Iowa's 1987 Groundwater Protection Act created Iowa's Household Hazardous Materials Program, which regulates the handling and safe disposal of household hazardous wastes,. The units of the Household Hazardous Materials Program include: the retailer consumer education program, toxic cleanup days, regional collection center, the waste oil program and the household battery program.

The retailer consumer education program requires retailers who sell household hazardous materials (HHMs) to obtain a permit and label the shelves where these products are found. Retailers must also display information signs near large concentrations of HHMs that explain the labels and tell consumers where brochures on household hazardous materials may be found. Money from permit fees is used as a funding mechanism for supporting HHM education activities including: publication and distribution of brochures, fact sheets and charts to retailer and the public; and conducting toxic clean-up day events. Education is an important part of the HHM Program. Iowa citizens are encouraged to use non-toxic products when possible, buy only the amounts of HHMs needed, share left over paint with friends and neighbors, and as a last resort, bring household hazardous wastes to a toxic clean-up day. Iowa State University Extension has also developed some educational materials and has assisted in distributing educational materials concerning HHMs.

DNR has been involved in 94 toxic waste clean-up days. On these days, citizens are encouraged to bring their household hazardous wastes to designated locations where the wastes are sorted, packed and properly disposed of by a hazardous waste contractor. Useable paint is often donated to non-profit organizations or local governments. In 1990, legislation provided additional funding to establish permanent household hazardous waste collection sites (regional collection centers).

Regional collection centers (RCCs) collect hazardous wastes from households and conditionally exempt small quantity generators (CESQGs) on an ongoing basis. The goal of RCCs is to educate households and CESQGs regarding the purchase and proper disposal of hazardous wastes and provide regular access to a means of proper disposal of these wastes.

The Iowa Waste Volume Reduction Recycling Act of 1989 prohibits landfilling of waste oil. Anyone who retails oil must provide collection of waste oil from "do-it-yourselfers" or post signs that tell "do-it-yourselfers" where the nearest waste oil collection site is located. Retailers that sell lead acid automotive batteries must accept a used battery from consumers that purchase new batteries.

In 1992, new legislation (1) placed limits on the amount of mercury that manufacturers can add to alkaline manganese batteries, (2) required that after January 1, 1994, batteries in rechargeable consumer products shall be easily removable, and (3) that, beginning July1, 1996 manufacturers and retailers create a program for the recycling or proper disposal of mercuric oxide, nickel cadmium and small lead acid batteries.

i. IOWATER

IOWATER is a statewide volunteer water monitoring program designed to protect and improve Iowa's water quality and enhance individual appreciation and knowledge about the importance of local water resources including lakes, streams, wetlands, and groundwater.

Volunteer monitoring is an excellent and well-documented way to educate citizens about the water resources in their communities. Monitoring helps build a better informed and more responsible citizenry with a greater knowledge of and commitment to their landscape.

Although there are many local volunteer water monitoring projects operating in Iowa, IOWATER is needed to address issues which are beyond the scope of any individual project. A statewide network can help facilitate existing groups, and support new groups through activities that include: educating Iowans about water resources and the goals of water monitoring, serving as a clearinghouse for information, offering training and technical assistance, establishing a framework for data collection, and serving as a conduit for funds to assist local monitoring projects.

j. Landfill Regulation

Virtually all of Iowa's solid waste is now disposed of in 61 municipal and 14 industrial permitted sanitary landfill sites (FY98). There are a total of 266 solid waste management facilities in the state, which includes permitted and permit-pending municipal and industrial landfills that are operational or closed, as well as facilities for waste transfer, recycling, composting, incineration, disposal of household hazardous materials, and land application and related waste management facilities.

Before a 1974 Iowa law required that solid wastes be disposed in permitted landfills, Iowa had over 2,000 municipal open dumps, including many which were located in sites with considerable potential for groundwater contamination. Much of the contamination potential of these now abandoned open dumps remains, even though they have been capped with soil and re-vegetated. In the past, industrial wastes were often disposed of on lands owned or leased by the generating companies. While this practice is no longer permitted, over 500 abandoned industrial disposal sites have been identified, and some are known to be sources of groundwater contamination. These problem sites are now being addressed through the states contaminated sites program.

In 1975, state law required the numerous private dumps or town dumps to close and be replaced with sanitary landfills. Today there are 75 permitted operational municipal and industrial landfills in Iowa. Rules requiring each local government to provide an approved solid waste disposal system for its population have been in place since 1989. Local boards of health cooperate in enforcing the state solid waste management rules. County boards of supervisors are responsible for regulating sold waste disposal in unincorporated county areas.

Iowa law requires that, after July 1, 1988, all cities, counties and private agencies operating a sanitary landfill must file a comprehensive solid waste management and waste reduction plan. The alternative waste management analysis must address (in order of preference) volume reduction, recycling and reuse, and other approved techniques of solid waste management, including combustion with energy production or waste reduction, and landfilling. By law, a comprehensive plan must now be completed and approved before the IDNR can issue a new landfill operation permit or renew an existing permit.

The Iowa Legislature passed the Waste Volume Reduction and Recycling Act that became effective July 1, 1989. Based on the 1988 baseline data, Iowa set a goal of reducing the amount of the waste stream in the state by 25 percent by 1994, and by 50 percent by the year 2000. Burial of yard waste at sanitary landfills has been prohibited since January 1, 1991 unless the landfill separated the waste and used it for composting. In addition, disposal of used tires at landfills has been prohibited since July 1, 1991. Iowa's landfills have not accepted waste oil or lead batteries since July 1, 1990.

Regulations that became effective June 21, 1989 set definite standards for monitoring of landfills, requiring specific construction standards, minimum number of monitoring wells, and spacing of the wells.

k. On Site Wastewater Treatment Disposal

In Iowa, local boards of health have primary responsibility for regulation of septic tanks serving less than 15 people, while IDNR has primary responsibility for larger (public) systems. In conducting their activities, counties must comply with the minimum state standards developed by IDNR. If counties fail to adopt or enforce IDNR standards for smaller systems, IDNR has concurrent authority to force compliance by individuals and the counties with the minimum standards for on-site wastewater treatment and disposal.

The IDNR rules specify siting and construction requirements relative to the primary and secondary treatment portions of the sewage disposal systems as well as minimum depth to groundwater, minimum separation distances to potable water sources, and maximum percolation rates for soils. The IDNR standards are a prescriptive code giving design criteria for each alternative type of secondary treatment system.

The IDNR also licenses all commercial pumpers of septic tanks and livestock holding tanks. Although the IDNR is responsible for licensing and regulation of commercial septic tank cleaners, the county boards of health are responsible for enforcement of the regulation.

Because of the responsibility the counties have in this area, the IDNR in 1994 participated in the establishment of a training curriculum in on-site sewage disposal for county sanitarians. The curriculum is presented semi-annually for new sanitarians by a community college. The IDNR has also been working actively to encourage those counties lacking an adequate enforcement program to upgrade their staff.

An estimated 350 small Iowa communities provide no recognized wastewater treatment for homeowners. In addition, an unknown number of individual property owners across the state have septic systems that do not meet state standards. As these systems have the potential to impact surface or groundwaters with untreated wastewater, it is critical to bring such systems into compliance.

DNR is in the process of developing a State Revolving Loan Fund (SRF) program for on-site wastewater treatment systems. A budget of 3 million dollars is being proposed, with a required 20% state match. Through the SRF program, no – or low-interest loans would be provided for the upgrade or replacement of septic systems. These funds will be administered through county sanitarian offices, and individual counties will have the flexibility to prioritize or target areas for funding.

l. Protected Wetlands

Iowa law recognizes the importance of certain wetlands and limits their destruction through designation of a category of "protected wetlands". This law, passed in 1990, defines protected wetlands as an area of two or more acres in a natural condition that is mostly under water or waterlogged during the spring growing season and characterized by hydric vegetation or soils. A protected wetland does not include land where an agricultural drainage well had been plugged, causing a temporary wetland, or land within a drainage district or levee district.

The law charges IDNR, in consultation with county conservation boards, with developing an inventory of protected wetlands, and then making a preliminary designation as to which qualify for protected status. This law only protects certain types of wetlands, including only a portion of wetlands regulated under current federal law. These protected wetlands are eligible for property tax exemptions.

m. Protected Water Areas

The Iowa Protected Water Areas (PWA) Program (Section 462B, Iowa Code) is based on a statewide assessment of Iowa's best scenic rivers, natural lake shorelines, and marshes. The program identifies and protects those high water quality lakes, rivers, and marshes which are still in a native-like condition. Therefore, this program does not provide corrective measures for or address impaired waters.

The Iowa PWA General Plan, published in 1981, identifies a voluntary protection zone for a PWA. This zone is a minimum of 50 feet adjacent to any lake, river, or marsh, adjacent natural area, areas of historical and archaeological significance, and other areas where visual degradation would adversely impact the scenic qualities of the river corridor. Through acquisition or easement, this area is then managed according to the natural habitat requirements, as determined by IDNR. Installation of structural practices is not a typical component of the PWA Program.

The Resource Enhancement and Protection (REAP) Program annually provides 5 percent of the 28 percent Open Space funding for the purpose of PWA implementation. The FY99 allocation was $155,000. In the past, these funds have provided for land acquisition or easements for areas adjacent to existing preserves, state parks, and wildlife/recreation areas.

Any person, group, or agency can recommend an area to the IDNR for PWA designation. The success of the preservation efforts must rely on voluntary participation. Therefore, it is critical the recommendation be locally driven and supported, as there is no regulatory authority for controlling land use within a PWA.

Upon receiving a recommendation for a PWA,IDNR initiates a five-step filtering process to determine if the proposed PWA should be included in the PWA Program. This filtering process is defined by the Iowa PWA General Plan and utilizes specific criteria and includes the development of a PWA Master Plan.

A PWA Master Plan is developed by the IDNR and documents the resources to be protected, delineates the protection boundaries, identifies the protection methods, describes the preliminary landowner negotiations, and provides a staffing and funding estimate. Final approval of the PWA Master Plan for inclusion in the PWA Program requires signature by the Governor of Iowa.

The PWA General Plan included a list of 103 natural occurring marshes that ranged from 4 to 1,046 acres of water. Several of these were listed as high priority sites for protection. Most have been acquired or are within the boundaries of ongoing acquisition projects. Five rivers or segments of rivers have been identified as Protected Water Areas, totaling 315.3 river miles located in 15 counties. Those rivers include: Boone River in Hamilton County; Little Sioux River in Clay and Buena Vista counties; Middle Raccoon River in Guthrie and Dallas counties; Wapsipinicon River in Bremer, Buchanan, Linn, Jones, Cedar, Clinton, and Scott counties; and Upper Iowa River in Winneshiek and Allamakee counties.

n. State Comprehensive Outdoor Recreation Plan

The State Comprehensive Outdoor Recreation Plan (SCORP) was developed under the authority of the Land and Water Conservation Fund (L&WCF) Act of 1965, which was established to assist in preserving quality and quantity of outdoor recreation resources. From 1965-1995, the L&WCF had provided over $44.3 million in matching grants to Iowa and its cities and counties.

The SCORP is designed to provide a relatively short synopsis of outdoor recreation supply and demand, and of related opportunities and issues affecting the State of Iowa. SCORP also identifies actions needed to help resolve outdoor recreation issues, and lists programs currently in place and being used to help increase and improve the types of recreation opportunities available.

Counties, cities and towns use SCORP as a reference in preparing grant applications for Land and Water Conservation Funds and Resource Enhancement and Protection (REAP) program funds. SCORP lists recreation opportunities by region of the state and also shows areas of need based on population for a variety of activities. The list of issues and needed actions can be used by the legislature in their planning processes.

The SCORP indicates that IDNR is pursuing acquisition of wetlands to provide more secure, long-term protection for the state's disappearing wetland resources. State criteria given for establishing priorities for wetland protection are based on public benefits/manageability and rarity/uniqueness of particular types of wetlands.

SCORP acquisition priorities are listed as 1) palustrine emergent wetlands (potholes) in the 35-county Prairie Pothole Joint Venture Area, the Upper Mississippi River Joint Venture, and other part of Iowa; 2) other restorable wetlands; 3) riverine wetlands, particularly along the Cedar and Wapsipinicon rivers; 4) border river areas along the Mississippi and Missouri rivers; and 5) fens.

Iowa participates in the regional Prairie Pothole Joint Venture (PPJV), which is under the umbrella of the North American Waterfowl Management Program, a major effort to protect and improve waterfowl habitat. A goal has been set of protecting 50,000 acres of wetlands and associated uplands by the year 2000 for Iowa. From 1987 to 1996, 27,436 acres had been placed in public protection at a cost of $25,676,628.

The funding for protection of most of this land came from federal sources through NRCS and the FWS. However, acquisition and easements that provide partial protection of wetlands (and riparian corridors) are derived from many sources, including the REAP program, and from special interest groups, such as hunters, trappers, and preservation interests.

o. Sewage Sludge Regulation

Recycling wastewater is a centuries-old practice – cultures around the world have been putting domestic wastewater on land for thousands of years. The practice has proven to be profitable and beneficial. In an effort to change the image the word sludge brings forth, the term biosolids has

become the word of choice for many groups, promoting the beneficial uses of sludge. Even though the Environmental Protection Agency and the IDNR continue to use the term sludge, their goal is to promote the beneficial uses of recycling sludge for our environment by setting standards to protect the public health.

Farmers benefit from sludge applied to their land:
Sludge recycles plant nutrients (nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, zinc, and copper) at relatively low costs.
Sludge can boost crop yields, acting as a slow release fertilizer.
Sludge improves the soil's physical condition - the organic matter in sludge improves soil tilth, and increases the soil's ability to absorb water and hold nutrients, which help reduce erosion and natural runoff.
Municipalities benefit from land application of sludge:
Sludge provides an environmentally sound means of recycling and reuse of wastewater solids.
Sludge land application is generally less expensive than other disposal means.
Sludge land application frees up needed space in landfills that would have been used for disposal.

Federal regulations for land application of sewage sludge are presented in 40 Code of Federal Regulations Part 503 – Standards for the Use and Disposal of Sewage Sludge. IAC 567—67 (455B), known as Chapter 67, in the Iowa Rules establishes the standards for the land application of sewage sludge generated during the treatment of domestic sewage in a treatment works.

Iowa rules state that a 5-year program for land application of sewage sludge must be established. The program must be in writing and updated annually. In addition, a permit is required prior to any land application. Additional information and requirements of the land application program may be found in Chapter 67 or "A Sludge Manual for Generators and Land Applicators".

p. Storm Water Discharges

Many recent studies have shown that runoff from industrial and urban areas contains many of the same pollutants found in municipal and industrial discharges. Rainfall picks up pollutants from parking lots and streets, building roofs, construction and industrial sites, and mining operations.

IDNR administers the federal National Pollutant Discharge Elimination System (NPDES) storm water permit program in Iowa. Phase I of the NPDES storm water program is currently in effect. Final Phase II rules were published in December 1999, and it is expected IDNR will adopt Phase II rules in early 2001.

The Phase II rules are expected to require an additional 31 smaller-sized Iowa cities to obtain permits from IDNR. No additional industrial categories are covered by Phase II rules. However, permits are required for construction site activities that disturb land areas greater than one acre. This represents a significant reduction in the size of the disturbed area for which a permit is required (reduces from 5 acres to 1 acre).

q. Source Water Assessment and Protection

As required by the federal Safe Drinking Water Act Amendments, the Iowa IDNR has developed a Source Water Assessment and Protection Program and Implementation Strategy. This program is designed to help public water supplies prevent pollution and protect their water resources at the local level. Under this program, public water supplies can prevent drinking water contamination through planning, minimizing hazard locations and elimination existing hazards.

Source water protection is key to safe drinking water in the future. The state's goal is to have 60 percent of Iowa's citizens who are served by a public water supply, be provided drinking water from a system with a source water protection program in place by 2005. This will entail the development of programs enabling public water supplies and their customers to initiate and promote actions to protect their drinking water sources.

The Source Water Assessment and Protection Program includes the following four elements:

- Identification of the drainage area which is providing water to the wellhead
- Identification of possible sources of contamination within this drainage area
- Susceptibility of the water supply to the identified contaminants
- Provisions to provide the assessment results to the public.

IDNR intends to use the Source Water Protection Implementation set-aside from the Drinking Water State Revolving Fund program (15% of the total state allocation of 16.8 million). 67% of these funds will be used to delineate and assess source water protection areas. IDNR will enter into contracts to complete the source water delineation and assessment phases for the public water supplies. To meet the 60% goal, it is essential the larger PWSs participate. However, the smaller PWSs will also be encouraged to participate as funding allows.

IDNR will assist in the development of the delineation and assessment phases by providing information from a variety of databases to the public water supplies. Such information may include, well construction, hydrogeologic boundaries, land use, potential contaminants (i.e., underground storage tanks, fertilizer/pesticide dealers, solid waste disposal sites, ag drainage wells, etc.).

Once completed, assessments can be used to focus prevention resources on drinking water protection. Linking the source water assessment to implementation programs is strongly encouraged. Other funding programs, such as Section 319 and WPF, are being coordinated with the assessments to target and prioritize implementation of needed practices or corrective actions. An example of such coordination is the Rock Valley Wellhead Protection Project, which is a Section 319 and WPF funded project intended to protect and improve the drinking water for the city of Rock Valley, which has historically reported high nitrate levels.

Unless the assessment identifies potential problems that are covered by state or local regulations, the majority of preventative actions will be on a voluntary basis. Therefore, it is critical the

public, specifically those within the drainage area providing water to the wellhead, be an active participant in all phases of the development of the source water assessment plan.

IDNR has worked with the technical advisory committee that was convened for development of the State's wellhead protection plan to work out any technical matters. In addition, IDNR convened a separate Citizen's Advisory Panel consisting of representatives from all appropriate stakeholders groups. Informational hearings were held across the state regarding the plan for the source water program. The technical advisory committee convened to discuss implementation of the Safe Drinking Water Act and utilization of the State Revolving Fund (SRF).

r. Property Tax Incentive

Iowa law provides for property tax exemption for a number of types of land that fit specific guidelines, including wildlife habitat, forest cover, recreational lakes, rivers and streams and stream banks, native prairie, and wetlands. Wetlands that are eligible include protected wetlands designated by IDNR, as well as those wetlands restored under a nonpermanent restoration agreement.

The property tax exemptions treat wetlands and native prairie differently than other types of conservation lands. Eligible wetlands and native prairie are automatically granted the property tax exemption. The decision to grant an exemption for most other categories of conservation lands is at the discretion of county boards of supervisors, who decide how much land is eligible in their county during that year, based on a formula outlined in state law. The assessing authority can be reimbursed by the state for local tax revenue lost from the exemption of wetlands.

These tax exemptions represent an appreciation for the public values associated with lands in conservation uses, while recognizing that such lands often mean reduced income producing capability. While this concept is widely considered to be a fair and useful means of encouraging conservation, it is not always popular with local governments because it reduces local tax revenues. (Even though some of the benefits of protecting wetlands and other conservation lands accrue locally, these indirect benefits are not easy to quantify, and thus often compare unfavorably to obvious, direct reduction in local taxes.) Iowa's mechanism for the tax exemption for certain types of wetlands and native prairies to be refunded by the state government helps address this problem.

s. Streambank Stabilization and Habitat Improvement

The IDNR/Fish and Wildlife Division, through an agreement with IDALS, is initiating a program to provide environmental improvements on streams impacted by fish kills. This program will be funded by penalties collected for documented fish kills. For FY99, these funds amount to approximately $100,000.

These funds will be made available to the county or counties in which the fish kill occurred. The priority for allocation of these funds will be for improvements to the actual stream segment on

which the fish kill occurred. If the funds can not be used on the actual stream, the funds may be assigned for use on a tributary to the stream, and finally, within the county as needed. Practices and activities planned include streambank stabilization, livestock exclusion, and riparian corridor improvements. Through these activities, long term water quality and habitat improvements are anticipated.

t. Sport Fish Restoration Funds

The Sport Fish Restoration Act (SFR) of 1950, with companion of Wallop-Breaux Amendment of 1984, placed a 10% tax on fishing related tackle, supplies, and marine fuels purchased by anglers. The state receives a share of this money based on its geographic size and the number of fishing licenses sold. Currently, Iowa's return is nearly $7 for each license sold, which accounts for approximately 28% of the fisheries budget. SFR funds have brought $2.5 million to Iowa annually.

Sport Fish Restoration funds are used to build lakes and lake renovations and accesses, stream habitat improvement, fishing piers, jetties, boat ramps, fish cleaning stations, and silt retention structures to protect water quality and extend a lake's life. In addition, funding is used for acquisition, education, research and development.

u. Contaminated Site Program (formerly known as Uncontrolled Site Program)

Hazardous waste or hazardous substance disposal sites are the result of past or current manufacturing/commercial activities or waste management practices. Some of these past disposal activities included municipal open dumps or private industrial hazardous waste disposal sites. Private disposal of industrial wastes containing hazardous materials is prohibited today. As required by a state law passed in 1975, approximately 2,000 municipal open dumps were closed by 1976, and industries had to stop disposing of their hazardous waste on-site or on land leased by them after 1981. Closure of most of the municipal dumps consisted of covering the debris with six to twelve inches of soil and re-vegetating the area. Regulation of the various types of hazardous waste or hazardous substance disposal sites generally fall under state authority or one of two federal programs:

The Resource Conservation and Recovery Act (RCRA) of 1981 required specific regulations for controlling the management and disposal of hazardous wastes. Uncontrolled site problems created since 1981 are usually addressed under RCRA authority, especially if the problem is clearly identified with a manufacturing/commercial activity or waste management practice. The RCRA program in Iowa is managed solely by the U.S. EPA out of its Region VII office in Kansas City, Kansas.

The Comprehensive Environmental Response Compensation and Liability Act (CERCLA or, more commonly, "Superfund") required regulations to deal with uncontrolled site problems not covered by RCRA authority. Through a cooperative agreement with U.S. EPA, the IDNR conducts preliminary assessments and site investigations. The initial focus was on sites caused by spills of hazardous waste management practices prior to 1981, but also includes more recent

sites not covered by RCRA. The state has actively participated in the CERCLA program since its inception in the early 1980's. In general, the state's role has been to determine if the site problem warrants remedial action as a National Priority (Superfund) site. If the answer is yes, the U.S. EPA will place the site on the National Priority List (NPL) and will take further action. At most sites, however, remedial action is not necessary, and these sites are referred back to the state for further action.

The 1987 Iowa Groundwater Protection Act made the land disposal of most wastes illegal unless a permit for such disposal is first obtained. This provision applies to all public and private parties. Pursuant to the 1987 Iowa Groundwater Protection Act, the IDNR adopted into rule Chapter 133 of the Iowa Administrative Code. The rule gave IDNR broad authority to require investigation of actual or potential groundwater contamination. Such investigation must be completed by the responsible party as determined by IDNR. This authority has been used to investigate and redress sites in conjunction with the IDNR's authority under CERCLA. The advantage of Chapter 133 is that it can be utilized to address sites which are not serious enough to be covered by CERCLA. To date there have been approximately 100 sites addressed at least in part, under Chapter 133.

In an attempt to establish a relative priority for remedial action and to improve management of uncontrolled sites, Iowa established the Registry of Hazardous Wastes, also know as the Hazardous Substance Disposal Sites Registry. IDNR is required to develop and maintain a registry of confirmed hazardous waste or hazardous substance disposal sites. The listing of sites on the Registry started in 1984 and currently includes 71 sites located in 41 counties. Most of the sites were added during 1989-1991. An additional 11 sites have been proposed for inclusion on the Registry. Approximately 900 other sites have been identified (mainly through RCRA and CERCLA programs) which require investigation to determine if they should be placed on the Registry. Because of resource limitations, only one site was proposed for the Registry in 1996. Currently, this program is not funded and there is no indication of future funding plans.

All sites listed on the Registry are classified according to the relative priority listing for remedial action at the site, as specified in the Code of Iowa. Classifications are as follows:
Immediate action required: Sites causing or presenting an imminent danger of irreversible or irreparable damage to the public health or environment;
Action required: Sites posing a significant threat to the environment;
Action may be deferred: Sites not a significant threat to the environment or public health;
Requires continued management: Sites properly closed;
No further action required: Sites properly closed, no evidence of present or potential adverse impact.

v. Water Quality Standards

As required by the federal Clean Water Act, the IDNR manages water quality through implementation of water quality standards. Iowa's water quality standards are designed to protect and enhance the quality of all waters of the state through prevention and abatement of point

source and nonpoint source pollution to the fullest extent possible consistent with statutory and technological limitations.

Water quality standards are the basis for the states' efforts to protect surface waters from pollution. Water quality standards define water quality goals by designating beneficial uses to be made of specific waterbodies.

All surface waters in Iowa are classified for protection of either "designated beneficial uses" or for "general uses". Surface waters designated for beneficial uses maintain flow throughout the year or contain sufficient pooled areas during intermittent flow periods to maintain a viable aquatic community. Types of beneficial uses designated for waterbodies include primary contact recreational uses (i.e., swimming), aquatic life (i.e., fishing), and drinking water uses. Each designated beneficial use is protected by a set of water quality criteria that are defined in state water quality standards. Water quality criteria are specified concentrations, levels, or narrative statements that provide a level of water quality that can support a designated beneficial use.

All surface waters in Iowa, including designated beneficial use waters, are classified for the following general uses: livestock and wildlife watering, noncontact recreation, crop irrigation, and industrial, agricultural, domestic, and other incidental water withdrawal uses. These general uses for all state waters are protected by narrative water quality criteria that are designed to prevent gross pollution and acutely toxic conditions. These criteria are described in section 61.3(2) of the Iowa Water Quality Standards.

Streams with a general uses designation are typically the intermittent headwaters of the larger perennial streams. Headwater streams in most regions of Iowa cannot support an aquatic community throughout the year, provide water based recreation, or serve as a source of potable water for a public water supply. Most of the lakes with a general uses designation are privately-owned lakes and ponds, and the state does not have the authority to control public access or to manage these waters for recreational uses.

Iowa expects to adopt nutrient standards in its water quality standards after EPA completes its development of regional nutrient criteria. Currently, EPA's is working to develop nutrient criteria for states to use in adopting numeric criteria for nitrogen and phosphorus in their water quality standards.

Once adopted, the nutrient standards will be used in evaluating Iowa’s surface waters, with waters not meeting the standards being placed on the state's 303d list for future TMDL development. It is anticipated many of Iowa's waters will not meet the nutrient criteria EPA is currently developing. Therefore, a substantial number of Iowa's waters may be found impaired, placed on the 303(d) list, and require development of a TMDL and implementation plan to bring these waters into compliance.

w. Resource Enhancement and Protection

The Resource Enhancement and Protection (REAP) program is funded by the state's general fund and receipts from the sale of the natural resource license plate. This program invests in the enhancement and protection of the states' natural and cultural resources. REAP provides money for projects through the state agency budgets or in the form of grants. Several aspects of REAP also encourage private contributions that help accomplish program objectives.

The following five state agencies administer REAP programs: Department of Education, Department of Natural Resources, Department of Agriculture and Land Stewardship, Department of Cultural Affairs, and Department of Transportation. REAP funds support the following eight programs: DNR Open Spaces, DNR Land Management, Roadside Vegetation, Historical Resources, County Conservation, Soil and Water Conservation, City Parks and Open Spaces, and Conservation Education.

2. Iowa Department of Agriculture and Land Stewardship

a. Water Quality Protection Projects

The goal of this program is to protect Iowa's surface water and ground water by developing projects through the locally led process initiated by the SWCDs. Also known as the Water Protection Fund (WPF), project sponsors consider the importance of the resource to be protected, the nature and extent of the water quality problem, and the overall cost effectiveness of the project.

Program funds are received from Iowa's 1990 Resource Enhancement and Protection Account (REAP) and are part of the soil and water enhancement account which receives 20% of the total REAP appropriation. Of that, fifty percent is directed to water quality protection projects.

Because of the complementary nature of the two programs, the request for applications and the project selection process for WPF and Section 319 are accomplished jointly and simultaneously between DSC and IDNR (see appendix 4). Many SWCD sponsored projects are also jointly funded but programs typically fund different project components.

Projects are typically developed using the watershed approach to address water quality issues with the majority of the projects being priority waterbodies. Watershed projects have been developed above publicly owned lakes, trout streams, high use recreation areas, urban areas and aquifer recharge areas.

b. Agricultural Drainage Wells

The 1987 Iowa Groundwater Protection Act provided funds to DSC/IDALS to conduct a research and demonstration project to address concerns about contamination of groundwater through the use of agricultural drainage wells (ADWs). Four ADW issues have been studied, including the continued use of ADWs through chemical management or the elimination of surface water inflow, and the closure of ADWs by providing alternative outlets or by conversion of the ADW areas to wetlands.

In addition, DSC manages a Section 319 funded ADW User Assistance Project. This project, administered by Iowa State University Extension, has assisted ADW users to adopt ICM practices. In the 1998 crop year, 39 cooperators with 12,300 acres and 58 ADWs were enrolled in the program from 5 counties. The project is also currently providing information and assistance to ADW owners in applying for continued use permits.

In 1997, the Iowa Legislature mandated the closure by December 31, 1999 and later extended this date to December 31, 2001, of all ADWs that were at risk of being contaminated due to accidental discharges from earthen manure storage structures located in their watersheds. The legislation also provided funds for the closure of these wells (all located in Wright County) and for construction of alternative outlets. In addition, the legislation provided funding for well closure and construction of alternative outlets for a cluster of 36 ADWs located in a drainage district in Pocahontas County, and gave DSC administrative responsibility for these projects.

The USDA EQIP provided cost share funding for intake removal, nutrient and pest management, alternative drainage, and wellhead protection in special projects. In addition, ADW BMPs were available as a component as a statewide priority with many of the remaining ADW owners in the state developing an EQIP plan to satisfy state legislation.

c. Construction Site Runoff

Iowa has taken several steps to control construction site runoff. In 1971, concerns about excessive sediment movement from construction sites prompted passage of laws setting limits on sediment movement from such sites. To inform contractors about practices which could be used to comply with these limits, the Iowa Division of Soil Conservation published a construction site erosion-control handbook in 1975.

Amendments to the sediment control law in 1981 changed the compliance procedures of the law but left the soil loss limits in place. Under the current law, county Soil and Water Conservation Districts administer its provisions, unless this responsibility has been delegated to a qualified local unit of government. A 1983 evaluation found that the erosion control law was working effectively in the more urbanized counties, but that it had little application at construction sites in rural areas.

As part of the state's storm water permit program, currently an NPDES permit is required for runoff water from construction activities that disturb five or more acres of land. (As described previously under the Storm Water Discharges section, the Phase II rules have been finalized and require a permit for land disturbing activities of one acre or more.) The provisions of the NPDES permit include development and implementation of a pollution prevention plan which focuses on erosion control and sediment containment. To help contractors and developers comply with NPDES permit requirements, IDNR contracted with Iowa State University Extension to develop a construction site erosion manual which was completed in September 1994.

Three water quality projects funded by Section 319 and the REAP Water Protection Fund are either in the process of addressing or have addressed construction site erosion control by providing information, demonstrations and training on construction site erosion control techniques for the planning, design and implementation of Best Management Practices. The projects are located in Cedar Rapids, Iowa City (Johnson County) and Des Moines. A fourth project, to be carried out in the Sioux City area, has been funded and is now in the initial implementation stage.

The Iowa Department of Transportation (IDOT) requires that methods for controlling soil erosion from a construction site be included in the original plan for a project. This is done either by the state engineers planning the project, or in the case where the project is put out for bids to the private sector, the contractor must include the soil erosion control methods in the original bid for the contract. Each erosion control plan is site-specific and is based on the topography, soil, and other conditions in the project area. Erosion control methods might include silt basins, silt fences, or ditch checks.

The IDOT does not have jurisdiction over county and city governments, however there is a local systems office that deals with county and city engineers. The counties use the same bid letting process as the state. They have to follow the same specifications, and they also have to meet these specifications. City projects that are locally funded, however, do not have to meet any special requirements.

d. Fertilizers

Nitrogen added to lands from animal feeding operations, wastewater treatment, and septic systems are regulated in part by state and local authorities. Commercial dealers and applicators of fertilizers are required to have impermeable dikes and pads where bulk supplies of fertilizers are stored and mixed. Application of fertilizers is not currently regulated, but efforts have been directed through education to encourage voluntary implementation of best management practices that maximize efficient use and reduce loss of applied fertilizers. As part of these efforts, IDALS has initiated a voluntary certification program for private laboratories engaged in soil testing. This certification program is designed to assure accurate and comparable analytical results on soil samples for growers in the State of Iowa, and to enhance the reliability of laboratories soil analysis and recommendation procedures.

Iowa law requires Iowa State University Extension to develop and publish material on the interpretation of soil results as well as the impacts of overuse of fertilizers and pesticides. A brochure entitled "Interpretation of Soil Test Results" published by ISUE and revised August 1999 is currently available.

e. Iowa Watershed Protection Program

The 1999 Iowa General Assembly funded a new program titled Watershed Protection (SF427) which will be administered by IDALS/DSC to provide watershed implementation monies to achieve water quality, flood control and soil conservation objectives. In addition, two staff positions were created in DSC to assist SWCDs and their partners organize and develop projects, including water quality projects. This program utilizes the same process format used when soliciting Section 319/WPF applications and may either fund entire projects or enhance certain project components not fundable through other programs. Project sponsors must be SWCDs. A total of $1.25 million was allocated for project implementation.

One of the major components of the legislation is the development of the Iowa Watersheds Task Force. This 18 month effort includes representation from the following State of Iowa Departments: Agriculture, Natural Resources, Emergency Management, Public Defense, County Conservation Boards, SWCDs, as well as any other stakeholders, including federal agencies and private organizations. The Task Force is to study the condition of watershed protection in the state and provide recommendations to IDALS on January 1 of each year through January 1, 2001. The recommendations will include a strategy for soil conservation, water quality protection, flood control and other natural resource issues.

f. Iowa Financial Incentive Program

DSC has received state appropriations for conservation cost sharing since 1973 through the Iowa Financial Incentive Program (IFIP). Funding from its inception exceeds $150 million. Annual funding from the state general fund appropriation is typically $6.5 million.

IFIP provides financial assistance to assist landowners apply structural and management practices to control soil erosion, maintain land productivity, and protect water quality. Funds are matched 50:50 by landowners and technical assistance is provided by field office staff.

Each SWCD is given an annual allotment based on its share of Iowa's most erosive cropland soils and funds are allocated under the direction of the district commissioners.

Although this program is not directed specifically to water quality BMPs, five percent of the annual allocation is distributed to practices above publicly owned lakes under the Publicly Owned Lakes Program (POLP) to protect them from sediment damage.

The mandatory program is funded with five percent of the total appropriation to be used where landowners are required to install soil conservation practices under court order when excessive soil erosion has been determined to cause damage to landowners downstream.

g. No-Interest Soil Conservation Loan Program

The 1983 General Assembly established a conservation revolving loan fund to provide loans to eligible landowners at no interest for the construction of permanent soil conservation practices. Eligible landowners may borrow up to $10,000 for a ten year period with repayment made in ten annual payments.

Initial funding totaled $1.8 million in the early to mid-80's. Since that time, only funds repaid into the conservation practices revolving fund have been available for new loans annually. In FY99, $320,000 will be repaid to the fund.

h. Organic Agriculture

The Iowa Organic Standards Board and IDALS Organic Certification Program staff are developing technical organic standards and program protocols. Once the Iowa Organic Certification Program is implemented, and "Iowa Certified Organic" seal will be available for those certifying through the new program. It is anticipated that the new standards will be adopted late in 1999.

Continued growth in the organic industry is anticipated in Iowa. In 1997, there were approximately 62,000 acres and 175 farms in Iowa certified organic by private certifying organizations. In 1998 certified organic acreage increased to nearly 120,000 and certified farms to nearly 700.

i. Pesticides

The Iowa Department of Agriculture and Land Stewardship is the primary department in charge of pesticide programs in Iowa. Programs include: licensing and certification of pesticide applicators; registering products; licensing pesticide dealers; inspection, investigation, and enforcement. Also, worker protection outreach program and initiatives related to groundwater protection.

In 1987, the Iowa General Assembly enacted the Groundwater Protection Act and expanded existing authorities. The goal of the Act is to prevent contamination from point and nonpoint sources to the extent practical, and restores groundwater to a potable state. In late 1996, IDALS submitted the State [Pesticide] Management Plan (SMP) for EPA approval. This plan and as approved by EPA, provides the template to develop pesticide-specific SMPs when needed.

The Groundwater Protection Act imposed fees for ag-chemical manufacturers and distributors and required commercial applicators to pass a test, pay a fee, and keep records of product application. If farmers apply restricted use pesticides, they must pass a private pesticide applicator test and pay a fee to be certified, but are not required to keep records.

Iowa's has developed a coordinated effort that includes government agencies and private organizations to address the pesticide issue. The Pesticide and Fertilizer Advisory Committee (PFAC) advises the Secretary of Agriculture, obtains scientific data, and coordinate Iowa's pesticide regulatory, enforcement, research, and education functions. The PFAC consists of members who have the scientific qualifications to evaluate pesticides and scientific information and propose specific appropriate state policies

j. Soil and Water Conservation Districts

Iowa's 100 Soil and Water Conservation Districts (SWCD) are responsible for carrying out soil conservation and water quality protection programs at the local level. Each SWCD is governed by a board of five elected commissioners who identify resource protection needs, set priorities, and coordinate and apply the resources of federal, state, and local agencies and organizations to address soil conservation and water quality needs.
The Iowa Department of Agriculture and Land Stewardship (IDALS), through the Division of Soil Conservation (DSC), provides support to the SWCDs through staffing, providing financial incentives and field office operations. NRCS provides technical assistance, office space and equipment to the districts.

Types of program activities include; implementation of Iowa financial programs; develop and implement water resource conservation plans including Section 319, Water Protection Funds, and Watershed Protection Funds; conservation education in schools; and, conducting demonstrations and field days.

k. Wetlands and Riparian Areas (DSC)

In 1999 IDALS, under the leadership of DSC and working closely with ISU, along with other State of Iowa Departments (Natural Resources, Economic Development, Education, Cultural Affairs, Transportation and Emergency Management) developed the Iowa Wetlands and Riparian Areas Conservation Plan.

The plan seeks to find effective and practical approaches to conservation of Iowa's wetland and riparian areas through protection, restoration, enhancement and construction. The 100 page document is Phase I of the planning process.

Phase II is to work with state, local and federal agencies and involved organizations to select and initiate priority goals and strategies. Issues and goals include: education and outreach; expand research to develop Iowa-appropriate knowledge of wetland and riparian functions; the protection, restoration, management and creation of wetlands and riparian areas; coordination of government programs; monitor and evaluate - net loss or gain of wetlands and riparian areas, program impacts, and the plan itself.

3. United States Department of Agriculture

Congress established the United States Department of Agriculture in 1862 "to acquire and diffuse among the people of the United States useful information on subjects connected with agriculture … and to procure, propagate, and distribute among the people new and valuable seeds and plants.

Beginning with basic research and education to increase agriculture production, USDA has changed with changing times. As improved farming methods led to larger crop yields, USDA expanded its emphasis on marketing farm products and supporting fair prices. New missions were added such as regulating food safety; promoting exports; predicting weather; regulating marketing systems; protecting the soil, water, and forests; promoting rural economic development; teaching home economics; guaranteeing needed credit to farmers; expanding agricultural markets at home and abroad; and ensuring an adequate diet for all Americans.

While many of the agencies within the USDA deal with environmental protection, the Natural Resources Conservation Service and the Farm Service Agency have a significant emphasis of environmental protection and conservation within their program areas. Through as variety of programs offering technical assistance and financial support, many conservation efforts have been completed, protecting and improving the nation's natural resources including water quality.

The NRCS, formerly the Soil Conservation Service, was formed in the mid-1930's in response to the Dust Bowl catastrophe and the ensuing soil erosion. Today, NRCS is the federal agency that works with the American people to conserve natural resources on private lands.

Traditionally, most of the assistance provided by NRCS is carried out by staff in one of the local field offices. The NRCS staff at the local level works with state and local conservation staff and volunteers in a unique partnership. Benefits from these activities are multi-faceted. They include no only on-site benefits such as sustaining and improving agricultural productivity, but also other benefits such as cleaner, safer, and more dependable water supplies, reduced damages caused by floods and other natural disasters, and enhancing the natural resource base to support continuing economic development, recreation, and other purposes.

Assistance from NRCS includes conservation planning and implementation, conservation cost share program assistance, watershed planning, agricultural and other natural resource information. It also includes professional help in agronomy, soils, biology, forestry, plant materials, engineering, and other technical areas. The agency's work focuses on erosion reduction, water quality improvement, wetland restoration and protection, fish and wildlife habitat improvement, stream restoration, water management, and other natural resource concerns.

The Farm Service Agency (FSA) ensures the well-being of American agriculture, the environment and the American public through efficient and equitable administration of farm commodity programs; farm ownership, operating and emergency loans; conservation and environmental programs; emergency and disaster assistance; domestic and international food assistance; and international export credit programs. FSA enhances the environment by the development and implementation of programs to ensure adequate protection of our natural, cultural and historic resources. Assistance in provided to agricultural producers and landowners in achieving a high level of stewardship of soil, water, air, and wildlife resources.

Conservation programs conducted under the authority of USDA include:

a. Environmental Quality Incentive Program NRCS – Lead Agency

The Environmental Quality Incentives Program (EQIP) is a USDA conservation cost-share program designed to encourage and support voluntary conservation of natural resources on private agricultural lands. It provides technical assistance, cost-share and incentive payments, and education to producers who enter into 5-year contracts based on conservation plans. Fifty percent of the EQIP funding is targeted at natural resource concerns related to livestock production.

NRCS as the lead technical agency, and along with FSA, is responsible for establishing policies, priorities, and guidelines for the EQIP. The State Technical Committee, which includes members from a number of state and federal resource agencies and various agricultural and environmental organizations, advises NRCS on EQIP priorities, criteria, and implementation issues. SWCDs and FSA County Committees, as well as the general public, participate in project selection and implementation through local working groups.

Iowa's EQIP funds are focused on protecting and enhancing water quality, controlling soil erosion, improving grazing lands, and developing better animal waste and nutrient management systems. Practices used include traditional structural and management soil conservation practices like terraces, grassed waterways and conservation tillage; as well as water quality BMPs like filter strips, manure management facilitates, integrated pest management, ag drainage wellhead protection, and wetland restoration.

Iowa has designated three Statewide Resource Concerns: livestock manure; soil erosion, and priority lakes/municipal water supplies/ag drainage wells. To be funded under the statewide resource concerns funding, projects must: provide a benefit to specific water resources; provide an emphasis on livestock production; and/or provide soil erosion benefits.

In addition, EQIP is used to support other state, federal or local laws and regulations, such as; the Federal Threatened/Endangered Species, Swampbuster, Iowa Soil 2000, local water quality plans, etc.

Individual applications are accepted and ranked based on their relative environmental merits within a priority area, or statewide if the applicant was within the criteria of a Statewide Resource Concern. A ranking system is applied to each application. The ranking system includes: tons of soil saved by reducing sheet and gully erosion; proximity to a priority water body; watershed size; conversion of cropland to pasture, woodlands, or wetlands; the use of an extensive grazing system; using low-cost or landowner installed practices; or accepting less cost-share or incentive payments. Applicants compete against each other within each priority area.

Individual applicants may receive up to 75% cost-share, with a limit of $10,000 annually, and $50,000 for the length of the contract, typically 5 years. A plan is developed cooperatively by the NRCS and the producer, with a requirement the plan must treat the land to a sustaining level.

Since 1997, Iowa has allocated $9.8 million towards fifty-two locally determined priority areas and $2.7 million towards statewide soil erosion concerns. Lesser amounts were allocated towards priority waterbodies and development of animal waste management systems.

b. Conservation Reserve Program FSA – Lead Agency

In 1986, the USDA began managing the Conservation Reserve Program (CRP) that allowed farmers to voluntarily enroll highly erodible cropland and receive rental payments for a period of 10 years. The cropland was to be seeded to grass or planted to trees.

Initially only highly erodible land was eligible for entry into CRP and landowners competed in a multi-county bid pool. Over the years the process changed to where landowners are given a rental cap based on the productivity of their land and average county rental rates. The landowners bid may be lower than the bid cap. Accepted bids are based on an Environmental Benefits Index (EBI) which takes factors such as wildlife habitat, water quality, soil erosion, and air quality into account.

Enrollment peaked at over 2.1 million acres in Iowa. As of April 1, 2000, Iowa has 55, 582 CRP contracts or 1,588,570 acres enrolled in CRP, paying $151,590,000 in rental payments to Iowa producers and landowners. For the 20th General CRP signup (ending February 11, 2000) Iowa producers and landowners submitted as estimated 6,300 offers or 221,800 acres for CRP program consideration. For the land currently in the program, soil erosion was nearly 20 tons/acre/year prior to entry into CRP and now is an average of one ton/acre/year saving 30.2 million tons per year.

Typically, grass seedings replaced corn or soybeans on land entered into CRP. Since nutrients are not normally applied on CRP land while the average acre of corn in Iowa receives 120#/acre of nitrogen and 75% of the corn acres receive 60# of phosphorus, the nutrient reduction associated with CRP acres is substantial. Assuming half of the 1.5 million acres of CRP in Iowa would otherwise have been in corn, entry of this land into CRP has reduced nitrogen applied to Iowa cropland by 45,000 tons and phosphorus by 17,000 tons. In addition, pesticides usage is reduced, or eliminated, on CRP.

Continuous CRP automatically accepts eligible offered land without a going through the competitive bidding process. Eligible land includes both cropland and marginal pasture areas that are suitable for continuous CRP sign-up practices, many of which impact water quality. Practices include; riparian buffers, filter strips, shallow water areas for wildlife, grass waterways, contour grass strips, and well head buffer areas. Iowa currently has 194,000 acres and more than 19,000 contracts currently enrolled in continuous CRP with a state-wide average rental rate of approximately $140 per acre.

A supporting program of the CRP is the Conservation Buffer Initiative. This program, in cooperation with a variety of other state and federal agencies, as well as public and private partners, has a goal to implement portions of conservation plans by installing 2 million miles of conservation buffers nationally by 2002. Seven private sector firms, organized as the National Conservation Buffer Council, pledged more than $1 million over a 3 year period to complement USDA's effort to promote buffers among producers. The partnership includes more than 75 nonprofit agricultural and environmental organizations.

c. Conservation Technical Assistance NRCS – Lead Agency

The purpose of this program is to assist land-users, communities, units of state and local government, and other Federal agencies in planning and implementing resource management systems. The purpose of the resource management systems are to reduce erosion, improve soil and water quality, improve and conserve wetlands, enhance fish and wildlife habitat, improve air quality, improve pasture and range condition, reduce upstream flooding and improve woodlands.

Objectives of the program include:

- Assist individual landusers, communities, conservation districts, and other governmental units to meet their resource stewardship goals and assist individuals comply with local and state laws and regulations;
- Assist agricultural producers comply with the highly erodible land (HEL) and wetland (Swampbuster) provisions of federal law. NRCS makes HEL and wetland determinations and helps land users develop resource management plans to comply with these laws;
- Provide technical assistance to participants in USDA cost-share and conservation assistance programs; and
- Collect, analyze, interpret, and disseminate information about the condition and trends of the Nation’s soil and other natural resources.

d. Resource Conservation & Development Program NRCS – Lead Agency

The purpose of the Resource Conservation & Development (RC&D) program is to accelerate the conservation, development and utilization of natural resources, improve the general level of economic activity, and to enhance the environment and standard of living in authorized RC&D areas. The RC&D program is administered by NRCS at the national and state levels. Specific project goals originate at the local level but must be consistent with long-range activities for resource conservation and development in rural areas. Land-based problems such as flood control, soil erosion, fish and wildlife habitat, agricultural water resources and community-based problems such as inadequate community facilities or local unemployment are examples of RC&D project targets.

At the local level each RC&D project is administered by a steering committee appointed by local sponsors of the RC&D area (typically county boards of supervisors and county soil conservation districts). There are 13 RC&D areas in Iowa, with 3 more currently being developed. RC&D areas are involved in water quality efforts in two ways:

- Directly working with local sponsors to plan projects to protect specific water bodies from identified water quality problems. Financial assistance and other implementation funds are used from federal, state, and other funding sources.
- RC&D project proposals are usually comprehensive resource development plans that have a positive effect on water quality and other environmental considerations.

e. Wetlands Reserve Program NRCS – Lead Agency

The Wetlands Reserve Program (WRP) is a voluntary program to restore wetlands. Participating landowners can establish conservation easements of either permanent or 30-yrear duration, or can enter into restoration cost-share agreements where no easement is involved. In exchange for establishing a permanent easement, the landowner receives payment up to the agricultural value of the land and 100 percent of the restoration costs for restoring the wetlands. The 30-year easement payment is 75 percent of what would be provided for a permanent easement on the same site and 75 percent of the restoration cost. The voluntary agreements are for a minimum 10-year duration and provide for 75 percent of the cost of restoring the involved wetlands. Easements and restoration cost-share agreements establish wetland protection and restoration as the primary land use for the duration of the easement or agreement. In all instances, landowners continue to control access to their land.

As of August 1999, Iowa had 826 Wetland Reserve Program contracts in place, covering a total of 91,026 acres.

f. Wildlife Habitat Incentives Program NRCS – Lead Agency

The Wildlife Habitat Incentives Program (WHIP) provides financial incentives to develop habitat for fish and wildlife on private lands. Participants agree to implement a wildlife habitat development plan and USDA agrees to provide cost-share assistance for the initial implementation of wildlife habitat development practices. USDA and program participants enter into a cost-share agreement for wildlife habitat development. Up to 75% cost share is available to eligible landowners that includes an agreement to maintain the area for 5 to 10 years. This program is currently not funded.

g. Little Sioux Flood Prevention Project (PL534) NRCS – Lead Agency

The Little Sioux Flood Prevention project was one of thirteen authorized by the Flood Control Act of 1944. The area includes 4,500 square miles of the Little Sioux River drainage basin in northwest Iowa. The uplands are authorized for erosion control and flood prevention assistance, which by definition includes gully control. Projects are not limited in size and include all types of erosion control plus flood prevention. Individual requests for fish and wildlife developments, recreation developments and municipal and industrial water supply may be considered and added as plan modifications that are not included in the original act. The 1,100 grade stabilization structures installed and systems of land treatment measures have resulted in reduced sediment delivery to surface waters.

The program is administered by NRCS, which provides allocations of funds for plan development and implementation of individual projects. The Little Sioux Works committee, made up of commissioners and supervisors within the participating counties makes decisions regarding the priorities for planning and the installation of structural measures. Administration of individual projects is carried out by the local sponsors, which normally includes the SWCD plus the county board of supervisors.

Financial and technical assistance is provided for the installation of structural measures. Cost sharing up to 100 percent of the construction cost is allowed for the flood prevention purpose, and up to 65 percent for the installation of conservation practices. The local sponsors are responsible for the acquisition of land rights and operation, maintenance, and replacement. Public Law 534 funds have been used extensively in Iowa with 83 projects completed, 17 in progress, and 24 currently being planned. The 24 subwatersheds being planned are the last in the Little Sioux Flood Prevention Project. These subwatersheds will be included in one final plan.

h. Watershed Protection and Flood Protection (PL-566) NRCS – Lead Agency

PL-566 funds have been used extensively in Iowa with 40 projects completed, 19 in progress and one in planning stage. Watershed projects including major water resource developments such as Three Mile Lake, Lake Icaria, Lake Sugema, Little River Lake, and Twelve mile lake, provide erosion control and flood prevention benefits on over 1,300,000 acres in Iowa. Recently authorized projects such as Bear Creek and Little Paint Creek in northeast Iowa include water quality improvement objectives to improve and protect those cold water streams. Additionally, nine projects have recreation, six projects have water supply and two projects have fish and wildlife as additional purposes.

The Watershed Protection and Flood Prevention Act was enacted in 1954 to provide technical and financial assistance for project development and implementation to protect and develop land and water resources. The PL-566 Program, which was established by the Act, provides site-specific technical expertise, and provides a process to solve local natural resource problems. The Emergency Watershed Protection (EWP) program is a component of the Watershed Protection and Flood Prevention program.

Projects are limited to watersheds less than 250,000 acres in size and may include purposes such as flood control, water quality improvement, recreation development, fish and wildlife developments, rural water supply, and erosion control. These projects also provide opportunities for local communities to include municipal and industrial and other agricultural water supply in selected reservoir sites. The program is administered by the Natural Resources Conservation Service (NRCS) which provides allocations of funds for plan development and implementation of individual projects. Administration of individual projects is carried out by the local sponsors, usually the SWCD and county boards of supervisors. Operation and maintenance is supported with local funds.

Agency policy has allowed the program to approach watershed planning in a comprehensive, ecosystem-based fashion. It involves all local people with a stake in the outcome, in the broad range of land use and conservation issues. Priority is given to watersheds where local people have identified the need for environmental restoration, water quality improvement, restoration of fish and wildlife habitat, and flood damage reduction.

i. Emergency Conservation Program FSA - Lead Agency

The Emergency Conservation Program (ECP) shares with agricultural producers the cost of rehabilitating eligible farmlands damaged by natural disaster. ECP funds may be used to restore or improve conservation practices that were damaged as a result of the natural disaster, but not to address conservation problems which existed prior to the natural disaster. Eligibility for ECP assistance is determined by county FSA committees, based on individual on-site inspections. Cost share assistance of up to 64 percent is available. Technical assistance for ECP may be provided by NRCS. Over $5.6 million dollars of ECP money was distributed to Iowa farmers and landowners for eligible disaster damage during 1999.

j. Emergency Watershed Protection Program NRCS – Lead Agency

The Emergency Watershed Protection Program (EWP) was established to respond to emergencies created by natural disasters, such as floods, fires, windstorms, etc. This is generally not an individual assistance program, but provides help to a group of people with a common problem. A project must be sponsored by a public agency, (state, county, city or conservation district).

EWP work is not limited to any set of prescribe measures, but can include: removing debris from streams, road culvert and bridge repair/replacement, reshaping and protecting eroding streambanks, correcting damaged drainage facilities, repairing levees, etc.

A component of the EWP is the Floodplain Easement Option. This program gives agricultural producers the opportunity to offer their land for a floodplain easement. The easements provide permanent restoration of the natural floodplain hydrology as an alternative to traditional attempts to restore damaged levees, lands, and structures.

k. Other USDA Farm Programs

USDA administers a variety of other programs which provide information for or may be of assistance in the state's efforts to address nonpoint source pollution issues. Examples of these include: Natural Resources Inventory, Soil Survey Programs, and the Forestry Incentive Programs.

In addition to its conservation programs, the USDA administers a number of farm programs whose primary purpose is to support the economic well being of farmers. These programs, administered by the FSA, include:

Farm Loan Programs: FSA offers direct and guaranteed farm ownership and operation loan programs to farmers who are temporarily unable to obtain private, commercial credit. Eligible borrowers include beginning farmers who have insufficient financial resources to qualify for commercial credit and established farmers who have suffered financial setbacks due to natural disasters or whose resources are too limited to maintain profitable farming operations.

Loans made by FSA can include guaranteed loans under which FSA can guarantee up to 95 percent of the principal made by conventional agricultural lenders, guaranteed loans with interest assistance provided by FSA, and direct loans made and serviced by FSA. For FFY 1999, FSA direct and guaranteed operating loans in Iowa totaled $191.0 million, and farm ownership loans totaled $52.5 million.

Production Flexibility Contracts: In 1996, the "Freedom to Farm" legislation ended the prior federal crop support programs and replaced them with a one-time sign-up for a Production Flexibility Contract (PFC), under which eligible producers receive seven annual but declining production flexibility contract payments through 2002. In Iowa, 144,763 farms and 15,205,528 acres are enrolled in this program. For FFY 1999, PFC payments to Iowa farmers totaled $520 million.

In addition to the PFC payments, during periods of low commodity prices Congress has authorized additional funding for farmers as Market Loss Assistance (MLA) payments. For crop year 1999, MLA payments to Iowa farmers totaled $520 million.
Price Support Programs: Federal law authorizes FSA to make marketing assistance loans and loan deficiency payments to farmers for production of eligible commodity crops. These loans and loan deficiency payments provide producers with interim financing, and thus enable producers to delay marketing of the crop until prices are favorable. For the 1999 crop, FSA made 36,100 commodity loans to Iowa farmers totaling $1,049 million, and made 306,100 LDP payments totaling $655 million.

Although the primary purpose of all of the above programs is to provide financial support to agricultural producers, a condition of eligibility for these programs is that the producer must be in compliance with the highly erodible land, the Sodbuster, and the Swampbuster requirements of federal law. Thus, these programs can be considered to have at least a limited conservation component.

Recognizing the high level of funding these programs receive (in comparison to the funding provided to the USDA conservation programs), it has been suggested that federal law should be changed to require a higher level of environmental performance by producers in order to be eligible for these programs. Doing so would have significant potential for improving water quality in Iowa, due to the large amount of cropland in Iowa and the high level of participation in these programs by Iowa farmers.

4. University of Iowa Hygienic Lab

The University of Iowa Hygienic Laboratory provides a full range of environmental analytical services to people of Iowa. Besides analyses, the UHL also provides scientific expertise in air and water quality for the State of Iowa. The Laboratory works closely with government agencies and general public help address water quality issues. The UHL is a valuable resource for the citizens of Iowa and is available to provide water quality analysis and scientific advice.

5. Iowa State University Extension

a. Manure Management

An estimated 50 million tons of manure are produced annually by Iowa's livestock and poultry industry. If improperly managed, manure represents an environmental threat to Iowa's surface and groundwater.

In 1997, ISU Extension launched a statewide education program to provide crop and livestock producers throughout Iowa with individual assistance on manure nutrient management. In county level workshops, farmers were shown how to develop a manure management plan tailored to their specific farm and manure resources.

Goals of the program are to:
enhance farm profitability by increasing the use of on-farm resources,
reduce potential nitrate and bacterial pollution of surface and shallow groundwater, and
reduce potential negative environmental impacts of excessive or improper manure nutrient applications.

ISU Extension provided leadership and development for this three-year program, with funding from the Leopold Center for Sustainable Agriculture and the Section 319 program.
In 1997, the first year of the program, 130 workshops in 88 counties reached 760 producers. In 1998, 101 workshops were conducted in 81 counties for 914 producers and in 1999, 36 meetings were conducted for 41 counties involving 230 producers. In total, 267 workshops reached 1,904 producers over the 3-year period.

Workshop participants complete both a pre-workshop assessment and post-workshop exit survey. A randomly-selected subset of participants received follow-up surveys by mail to determine if information learned at the workshop was adopted. According to the exit surveys:
99 percent would recommend workshops to others;
22 percent rated workshops as "good" and 76 percent as "excellent" or "superior";
86 percent expected to save money on fields where manure was applied (19 percent projected savings of $1-$5 per acre, 34 percent $6-$10 per acre, 30 percent $11-$20 per acre, and 19 percent projected more than $20 per acre savings);
92 percent would set realistic yield goals by field, and 85 percent would start following a nutrient-based manure management plan;
80 percent would change the amount of nutrient credits taken where manure was applied, and 79 percent would test manure for nutrient content, and

79 percent would keep a record of manure applications (on pre-workshop evaluations, only 31 percent reported keeping such records).

b. Manure Applicator Certification

The purpose of this project, entered into by IDNR and ISUE, is to develop manure certification training and testing materials and to conduct certification workshops for commercial manure applicators and confinement site manure applicators, as required in legislation passed by the Iowa Legislature (HF2494).

An advisory committee was established in September of 1998 consisting of representatives from farm organizations, commodity groups, ISUE,IDNR, and NRCS. Subcommittees were formed to work on specific tasks, such as Study Guide development and related activities. The committee serves in an advisory capacity and helps suggest policy and program direction.

Two Applicator Study Guides, one for commercial and one for confinement site applicators, were completed in March. Additionally, a supplemental study guide focusing on dry manure is in final stages of preparation, and training course teaching materials have been prepared.

Certification exam questions and answers were developed and correspond to relevant chapters in the Study Guides. A final set of about 120 multiple choice and true false questions were submitted to IDNR in March 1999. IDNR is currently scheduling and administering the exams.

By July 1999, six (6) commercial applicator certification workshops have been held reaching almost 600 individuals. In addition, 110 confinement site applicator certification workshops in 95 counties are scheduled for the June 1 - September 30, 1999 time period, and one special dry manure certification session was held and a second scheduled for poultry producers and other interested parties.

A web site and Manure Management Home Page at http://extension.agron.iastate.edu/Manure has been developed. This page has both a public and "for staff only" section.

c. IMMAG

In 1997, the Iowa Manure Management Action Group (IMMAG) was established to provide a vehicle for a coordinated and comprehensive approach to manure management. Under NRCS leadership, a state-level IMMAG committee was formed, including representation from the Iowa Environmental Council, Agribusiness Association of Iowa, Iowa Farm Bureau, Iowa Pork Producers Association, Iowa Cattlemen’s Association, Iowa Poultry Association, Conservation Districts of Iowa, Farm Credit Services of America, IDNR, DSC/IDALS, and ISUE and the Iowa State University College of Agriculture

Through ISUE, IMMAG has established an electronic clearinghouse that:
provides access to comprehensive information on manure management research and application,

identifies relevant manure management publications and educational programs and provides these in electronic form, if needed,
solicits needed resources from qualified sources, and
maintains the information on an easily accessible web site.

d. Maquoketa River Monitoring

Beginning in FY99, scientists in the ISU Department of Agricultural and Biosystems Engineering began monitoring surface water quality in the Upper Maquoketa River watershed in northeast Iowa. A major goal of the monitoring is to determine the surface water quality impacts associated with various animal waste storage/management practices in the watershed. Funding to support the monitoring is from a combination of sources, including Section 319 funding provided by IDNR and state funds appropriated by the Iowa Legislature to assess the water quality impacts of livestock operations. The results of this monitoring effort will be used to improve agency and community decision making in selection of appropriate management practices for dealing with nonpoint source pollution problems.

e. Information and Education Programs

ISUE is a client-focused organization based on a unique partnership between Iowa's citizens, universities, state and local governments, and the USDA. Extension provides research-based, unbiased information and educational programs to help people make better decisions in their personal, family, community and professional lives. Planning and direction of Extension programs involves locally-elected councils in every Iowa county, as well as state and area-level specialists. Five priority programs in the FY2000-2004 Plan of Work provide information and education directly relevant to nonpoint source pollution concerns.
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Program 103 "Nutrient Management" targets all groups responsible for nutrient and manure use decisions - crop and livestock producers, agency personnel, nutrient management planners, and nutrient suppliers (fertilizer and agricultural chemical dealers, livestock industry, and commercial applicators). The program emphasizes practices that minimize negative impacts of agricultural nutrient use on water, air and soil quality by: integration of all potential on-farm nutrient sources; adoption of environmentally optimum phosphorus (P), potassium (K) and nitrogen (N) fertilization rates; use of diagnostic soil and plant tissue tests; use of best storage and application technology for fertilizer and manure; animal feeding strategies that reduce manure nutrient content; and record keeping.

Program activities include manure certification training for the five thousand confinement site manure applicators and 500 commercial manure applicators who must meet certification requirements under recent Iowa legislation; training offered through the ISU Extension Agribusiness Education Program; development and expansion of nutrient management information and educational materials via handbooks, newsletters and internet web sites; one-on-one farm visits; statewide on-farm nutrient management demonstrations and field evaluation of new nitrogen and phosphorus management techniques. The program includes provision of nutrient and manure management assistance and training in targeted watershed projects.

Program 105 “Crops, Soil and Water Management” provides information and education on novel approaches to increase crop production efficiency and reduce production risks while protecting the natural resource base. Key concepts emphasized include adaptation of integrated weed, crop, and forage management strategies which sustain agricultural crop production and lessen environmental degradation; conversion of CRP acreage to sustainable crop systems; improving reliability of crop production systems during severe climatic variability; and improving quality, uniformity, value, and marketability of agricultural products.
Program activities include adaptive research and on-farm demonstrations of integrated weed and forage management; training for producers and agribusiness clientele to assist them in developing skills and awareness of more sustainable management methods; development and revision of publications and internet resources. The program offers business and technical training in integrated crop management to crop advisors in targeted watershed project areas.

Program 142 “Integrated Pest Management” is designed to reduce pesticide use on Iowa crop acreage through adoption of alternative pest management tactics such as use of pest-resistant cultivars, cultural practices, scouting, crop rotation, and biological pest control. The program emphasizes how IPM practices for field corn, soybeans and alfalfa result in more efficient use of resources, increased profitability, and enhanced environmental stewardship. Non-farm citizens are also targeted for information about the environmental benefits of IPM.

Program activities include the annual Extension ICM conference, state and regional Agricultural Chemical Dealer Updates, diagnostic clinics; courses held at the Extension Agribusiness Education Program’s Field Extension Education Laboratory; county and area crop clinics and field days, research and demonstrations at outlying research farms, publications, the ICM newsletter, web pages, and one-on-one contacts.

Extension also conducts IPM education through private and commercial pesticide applicator continuing instruction courses. ISUE is responsible for conducting the state-mandated pesticide applicator training program (PAT, Program 143). Some 35,000 private applicators annually receive training through this program, and about 12,000 commercial applicators receive four to six hours continuing education credits each year. Delivery methods include live and videotaped programs, and educational materials such as manuals, slide sets, web pages and bulletins. Pesticide applicator training strives to reduce off-target movement of pesticides and reduce human exposure to pesticides. The program cooperates with ISU’s Sustainable Agriculture Program, horticulture outreach programs to non-farm citizens, and the Integrated Pest Management Program.

Program 147 “Sustainable Agriculture” is designed to enhance both policy and technical support for more sustainable, environmentally-sound options for Iowa agriculture. Currently the program emphasizes sustainable practices involved in certified organic production, value-added crops and livestock, alternative swine production, Community Supported Agriculture, management intensive grazing, integrated crop management (ICM), improvement and protection of soil and water quality. Program activities include workshops, field days and pasture walks, in-service training for agency personnel, publications and internet resources. Targeted audiences include

farmers and agricultural professionals, resource development professionals, land owners, consumers, legislators and other key decision makers.

Program 200 "Building Community Capital" is designed to help Iowa communities identify and deal with deficits they may find in the various forms of community capital, including human, social, environmental, constructed physical, and financial. According to needs identified through Extension stakeholders in Iowa communities, special emphasis has been placed on environmental and cultural amenities, the quality of local jobs, and physical infrastructure. The activities of this Extension program are being applied to community watershed planning processes. The program can help citizens develop leadership skills, articulate a vision for their future and take positive steps to implement community improvements including watershed strategic management.

The program targets current and emerging community leaders in voluntary roles, concerned citizens, local elected officials and agency staff. Concepts emphasized are: involvement of larger and more diverse civic networks, increased adult education opportunities, collaboration among local and regional agencies, inventory of current assets and strategic planning. The program provides resource inventory tools (databases and analytical), specially-designed leadership programming, and capital-building programs.

f. USDA Water Quality Program

The USDA Water Quality Program (WQP)was established in 1990 and is currently winding down. Implementation of the projects under the initiative integrates the combined expertise of USDA agencies to promote voluntary adoption of environmentally and economically sound farming practices. ISUE provides the information/education component of this program.

In Iowa, the projects funded through this initiative also receive support from the Iowa Water Protection Fund, administered by IDALS; the EPA 319 Program administered by IDNR; the Leopold Center for Sustainable Agriculture, and many other public and private sources. Producers make a significant contribution through their cost share and other cooperation with these targeted projects. Major projects carried out in Iowa under this program included:

i. Nonpoint Source Hydrologic Unit Areas

The objective of the USDA Hydrologic Unit Area projects is to assist farmers in voluntarily applying conservation practices that will help achieve water quality goals in a specific water body. Iowa had one FY90 HUA at Union Grove Lake, and two FY91 HUAs, Sny Magill Coldwater Stream, and Three Mile Lake. The Three Mile HUA project is a model preemptive watershed protection project that began before the new Three Mile reservoir was completed in 1995-96. The Sny Magill project has become an important demonstration laboratory for riparian protection practices.

The NRCS provides leadership for HUAs, which also include Extension staff and cooperation of county Soil and Water Conservation Districts, Extension Councils and FSA County Committees.

NRCS uses project funding to provide accelerated technical assistance to landowners to develop and implement plans to control sediment from erosion on agricultural land. Animal waste management systems are developed to control waste runoff and improve management of manure nutrients for crop production. ISUE has contributed to the projects through information marketing efforts of a dedicated communications specialist. Extension has also provided for on-farm demonstrations and one-on-one assistance to watershed producers with refined nutrient and pest management practices, intensive grazing and forage management, and other best management practices to reduce nonpoint source pollution.

ii. Northeast Iowa Demonstration Project

ISUE is the lead agency for the Northeast Iowa River Basins Water Quality Demonstration Project (NEIDP), which includes 148,000 acres of primarily farmland in portions of Allamakee, Clayton, Fayette and Winneshiek counties, in the karst area of the state. The project area includes the Big Spring groundwater basin, site of Iowa's original multi-agency, state-funded groundwater protection project. ISUE and NRCS project staff work in cooperation with the four county SWCDs, Extension Councils and FSA County Committees to implement project activities. The principal goal of the NEIDP is to demonstrate the potential for voluntary adoption of selected management practices for water quality protection, and for technology transfer of these practices outside the project area.

The NEIDP has generated a local database from over 178 on-farm management demonstrations that documents the economic viability of best practices for manure, nitrogen, pasture/forages, and grazing management. Demonstrations also address environmentally appropriate utilization of released CRP acres, stream corridor and sinkhole protection, and tillage and residue management. Results of the demonstrations are promoted locally with intensive information marketing, including newsletters, local media, field days and pasture walks. Demonstration results also contribute to Extension programming statewide. Two educational initiatives developed by the project are now the basis for statewide nonpoint source programs (for manure and nutrient/pest management) sponsored by ISUE, NRCS, DALS and IDNR. Both depend on individualized learning - producers complete workshops using their own farm resource and crop production information to plan nutrient and pest management. Staff of the NEIDP also serve as resources for information and education strategies to staff of other nonpoint source water quality protects in Iowa.

6. Leopold Center for Sustainable Agriculture

The Leopold Center is a research and education center with statewide programs to develop and encourage sustainable agricultural practices that are both profitable and conserving of natural resources. It was established under the Groundwater Protection Act of 1987 with a three-fold mission: (1) to conduct research into the negative impacts of agricultural practices; (2) to assist in developing alternative practices; (3) to work with ISU Extension to inform the public of Leopold Center findings. The Center is administered through the Agriculture and Home Economics Experiment Station at Iowa State University.

A 13-member advisory board, established in the 1987 legislation, advises the director on funding of research proposals, policies and procedures, budget development, and program review. In 1994, four *ex-officio* members active in farming and agribusiness were added to the board. They received full voting privileges in 1999.

State fees on nitrogen fertilizer and pesticides provide annual support for research, education, and administration of Center programs. A state appropriation supports many of the Center's competitive grants.

Since 1990, the Center has launched seven interdisciplinary research teams to conduct systems research for more sustainable practices. Two long-established teams with direct links to water quality are animal management (year round grazing) and agroecology (buffers and riparian establishment and assessment, National Restoration and Demonstration Site). A new swine systems initiative focused on hooped hog structures has water quality foremost among its priorities.

As of July 1, 1999, the Leopold Center has awarded 206 competitive grants totaling more than $9 million, and they play a significant role in ISU and ISUE efforts to improve water quality. The research and education efforts cover a wide range of activities, from direct water quality monitoring to manure composting, nutrient management, measurement and application, wetlands construction and filtering, streambank erosion control, forage management, and wetlands pest control.

A conference, workshop, and special events competitive grants program allows the Center to conduct outreach activities with new partners each year. In 1997, the Center brought together 70 Iowa organizations and businesses in a year-long cooperative effort, the Year of Water, to recognize water quality progress in the state.

7. United States Geological Survey - Atmospheric Deposition

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) consists of nearly 200 active monitoring sites in the United States and Canada including two sites in Iowa that have been in operation since 1984 in Lucas and Clayton Counties respectively.

Atmospheric monitoring is useful in determining the distribution, quantity and relative contribution of a variety of chemicals from atmospheric deposition. The research is important in the development of an understanding for the overall hydrochemical processes and the potential effects on aquatic resources.

In a recent water quality study conducted by the U.S. Geological Survey of several eastern Iowa river basins, data from the two sites indicated that approximately 7 percent of the total nitrogen (both nitrate and ammonia) input into the rivers originated from atmospheric deposition.

B. Agricultural Organizations

1. National Corn Growers Association

The National Corn Growers Association (NCGA) is the trade organization in the U.S. that represents corn growers. Since 1957, the NCGA has successfully represented American corn growers throughout the entire corn industry, the U.S. government, among the general public, and throughout the world. Corn growers have always produced corn with one eye on profit potential and the other on wise use of natural resources. However, it wasn't until the 1990s that the NCGA participated in organizing and supporting a host of stewardship programs that are devoted to the conservation of soil and water resources.

One of the most significant is the Conservation Buffer Initiative, which began in 1997. Buffer strips conserve soil and water resources while providing crop protection, less wind erosion and benefits for wildlife. This initiative, which originated with 1990 farm bill policy debate, is notable because it marks the first cooperative agreement between USDA and a commodity group designed to reach grassroots growers.

NCGA has been active during the 1990s with regard to water quality. Through the Production and Stewardship Action Team, NCGA is developing a comprehensive, proactive plan that may become a road map for water quality. NCGA also hosted a Water Quality Issue Forum in 1998 and has been involved with the Fishable Waters Coalition to craft an innovative, voluntary, incentive-based, locally–led approach to improving fish habitat. In addition to its focus on federal issues, NCGA also serves as a resource to states on water issues.

The Iowa Corn Grower's Association is the country's oldest and largest state corn grower organization. The Iowa Association was created from a grassroots effort in 1967, with the purpose furthering the interests of Iowa corn growers. The members of the Iowa Association have been involved in policy development and building improved relationships with business and industry.

2. Iowa Cattleman's Association

The Iowa Cattleman’s Association (ICA) seeks to enhance the development of the beef industry in Iowa and the nation. It lobbies the state legislature for its more than 12,500 members.
ICA is a founding member of the Raccoon River Watershed Project that works with private landowners to voluntarily install BMPs in the watershed that provides drinking water to the city of Des Moines.

ICA is expanding their participation in the National Cattleman’s Beef Associations Environmental Stewardship Award to recognize cattle producers in every county to spread the adoption of BMPs.
In 1999, ICA developed the Farm Resource Management Seminar, in partnership with NRCS, to help producers develop the skills to implement comprehensive resource management systems on their farms. Participants will serve as mentors to help other producers get started in the process.

In 1999,IDNR funded an ICA sponsored Section 319 project in a statewide I&E effort to address grassland management and water quality in Iowa which will include publications, field days and trade shows.

3. National Pork Producers Council

The National Pork Producers Council (NPPC) is one of the nation's largest livestock commodity organizations. The NPPC's mission is "To enhance opportunities for the success of the U.S. pork producers and other industry stakeholders by establishing the U.S. pork industry as a consistent and responsible supplier of high quality pork to the domestic and world market, making U.S. pork the consumer's meat of choice".

As the pork industry changes in scope and complexity, the challenge to pork producers is to adapt and continue to be profitable. NPPC is meeting those challenges through a series of over 300 major programs addressing issues affecting pork from production to consumer demand.

Two check-off funded environmental programs are making progress in helping producers deal with environmental challenges. The On-Farm Odor/Environmental Assistance Program is designed to do on-farm assessments of pork operations by neutral third parties. The Odor Solutions Initiative is designed to solicit and evaluate biological, chemical, mechanical, nutritional and management technologies to abate or eliminate odor.

In addition, the NPPC is supporting, in cooperation with NRCS, Trees Forever, the National Soil Tilth Laboratory, and the Agroecology Issue Team, the Buffer Solutions for Pork Producers project. Through this project, pork producers are provided information regarding the applicability and cost-share availability of buffers around lagoons and manure application sites. When combined with other conservation practices, buffers help protect surface water and groundwater quality, improve air flow and air quality, and enhance the visual appearance of production facilities.

4. Iowa Soybean Association

The American Soybean Association (ASA) is a national, not-for-profit, grassroots membership organization that develops and implements policies to increase the profitability of its members and the entire soybean industry. The Association works to strengthen soybeans as an economically and environmentally sound cropping opportunity in the best interest of soybean growers and the public.

The ASA is holding a series of water quality forums that will establish a communication link for grower leaders and state government agencies engaged in the process of implementing Clean Water Act (CWA) requirements. The ASA and the National Corn Growers Association received a two-year grant from the EPA and the USDA to conduct the program. The forums will allow participating growers and their state associations to better understand the TMDL concept, and the approach that will be taken in those states allocating pollution control responsibilities within impaired watersheds.

The Iowa Soybean Association was organized in 1964, when a group of farmers came together with a common purpose to increase the profitability of soybean production. The ISA initiates grassroots governmental affairs activities at all levels, promotes state soybean policy positions, conducts member service programs, and contracts with outside organizations in the areas of consumer and industry information, producer communications and research.

The ISA partners with other groups, organizations, and agencies in supporting various water quality projects and programs. An example of the ISA involvement is the Raccoon River Watershed Project. This project focuses on sound land use management upstream in the subwatersheds, as a proactive approach to protect and improve the water quality of the Raccoon River, the major drinking water source for the city of Des Moines.

5. Iowa Farm Bureau Federation

The basic function of the Iowa Farm Bureau's environmental program is to monitor issues and develop dynamic programs, activities and partnerships that position Farm Bureau as a leader in progressive, science-based, economically feasible solutions to the environmental challenges facing modern agriculture.

Farm*A*Syst/Home*A*Syst (FAS/HAS) is a cost-effective, voluntary pollution risk assessment program that's been adopted successfully or is being developed in 47 states. Assessment materials have been distributed to approximately 60,000 farmers and homeowners in 29 states. The assessments result in significant management changes that protect ground and surface water quality. The goal of the IFBF-led project is to: 1) review FAS/HAS materials that have been developed in other states and develop materials specific to Iowa; 2) have farmer focus groups test the various materials and comment on their "user-friendliness;" and 3) revise and consolidate materials into a format(s) that are user-friendly and also account for regional differences in natural resource concerns. The project budget is $452,000 ($271,000 in U.S. EPA CWA Section 319 funding through the IDNR).

The IFBF has established a "mini grant" program designed to support innovative, local, citizen-initiated projects and partnerships that provide information and education materials and programs to persons about NPS pollution. It is designed to identify activities that most effectively inform and educate rural and urban citizens about NPS pollution challenges. The program is open to any and all groups (government and non-government) that cooperate with their county Farm Bureau. The project is funded through a $52,000 grant from the U.S. EPA Clean Water Act 319 Program, administered by the Iowa Department of Natural Resources. There have been 21 grants awarded during the past 3 years, with project budgets totaling $142,660 ($91,432 in local funding). The IFBF is planning to continue the program with its own funds beginning in 2000 by offering up to five, $2,500 grants annually.

The American Farm Bureau Federation pilot tested a tile-monitoring educational program in Iowa, Illinois and Indiana last fall and spring. The Sac and Carroll County Farm Bureaus cooperated in the pilot program. The goal of the pilot program was to test a delivery system for a

"turn-key" nationwide program now offered by the AFBF. The education objective is to investigate the importance of tile effluents such as nitrate and other compounds entering surface waters. This program provides information to participating farmers on the concentrations, and estimates total loadings, of these compounds. The information is causing participating farmers to investigate management changes that may influence these concentrations and loadings. The program will also provide information to farmers so that they might be better informed when questioned by the public about their contributions to specific water quality challenges. The program is now available nationwide. The Raccoon River Watershed Project is now using the program and its volunteer monitoring data to partner with farmers who are collecting tile water data in selected sub-watersheds.

A study was recently completed by the IFBF that examined the feasibility of constructed or restored wetlands to mitigate jurisdictional farmed wetlands. Mitigation banking has been promoted by the U.S. EPA as a means of reducing the impact of wetland regulation on business and industry. Results of the study indicate that there is a strong potential market for wetland mitigation banking in the agricultural community and drainage districts if credits can be priced reasonably. The IFBF is now partnering with the Iowa Department of Natural Resources, the Natural Resources Conservation Service and the Army Corps of Engineers to establish the first mitigation bank of its kind in the nation during the year 2000.

The IFBF is also partnering with Trees Forever, a private, Iowa-based non-profit organization, on the Iowa Buffer Initiative. This initiative is a statewide program designed to show farmers and rural landowners how stream side buffers of trees, shrubs and grasses improve water quality by reducing soil erosion. The five-year, $2 million initiative has a goal of establishing 100 project demonstration sites throughout the state of Iowa that showcase flexible approaches to establishing and maintaining streamside buffers. It will also develop a network of buffer specialists and provide recognition of those farmers who use streamside buffers. Novartis is a corporate partner.

The IFBF is also a founding partner in the Raccoon River Watershed Project. This project's mission is to increase awareness of watershed issues and help watershed residents develop environmental enhancements - while recognizing the associated economic impacts - that will ultimately improve water quality. The IFBF contributes annual cash and in-kind support to the project. Partners in the project include Iowa's major commodity groups, agribusiness, Des Moines Water Works and the Iowa Natural Heritage Foundation.

Partnering with the Natural Resources Conservation Service, the IFBF recently pilot-tested a seminar that focuses on developing the leadership skills necessary for successful locally led conservation. The seminar was offered to farmers, district conservationists and other citizens who have an interest in learning more about the skills necessary to successfully initiate and implement locally led conservation. The program is now being evaluated and may be offered on a regular basis.

C. Environmental Organizations

1. Iowa Environmental Council

The Iowa Environmental Council was founded in December 1994 as a statewide alliance of diverse organizations and individuals working with all Iowans to protect Iowa's natural environment. The Council seeks a sustainable future through shaping public policy, research and education, coalition-building, and advocacy. The Council's Board of Directors includes representatives of well- respected business people, farmers, scientists, educators, and former legislators from both political parties.

Since its founding, the Council has grown from 16 to 62 organization members and over 750 individual members. In 1998, a cooperator membership category was added for government organizations to participate as advisors. The Council currently has nine cooperators.

Because of the Council's strong record, their research and partnership approach, and the breadth of their board, the Council is seen as a balanced and credible voice for strong environmental policies in Iowa. Over the past five years, one of the Council's primary focus areas has been on improving Iowa's water quality by ensuring: 1) strong water quality monitoring in the state, 2) protection of groundwater from contamination through agricultural drainage wells, 3) prevention of pollution from livestock manure, 4) improving pesticide policies in Iowa to protect human and ecosystems health, and 5) improved implementation and enforcement of the federal Clean Water Act.

The Environmental Council also initiated development of the Iowa Water Quality Action Plan which was published in January 1998. The plan consists of a series of 12 goals and action steps to ensure that Iowa's water is safe for drinking, recreation, and for a sustainable economy. Participants in the plan's development included farmers and other landowners; scientists; state, local, and federal government officials; representatives of environmental and conservation groups; and other individuals concerned about Iowa's water quality. Programs and funding from the Iowa legislature in 1999 and 2000 have included many of the plans priority goals.

The Council will continue their focus on improving Iowa's water quality with the goal of water that is safe for drinking, swimming, fishing, and for aquatic life. In addition, the Council plans to expand its influence in three other areas: agricultural policy, land use, and natural resources funding.

2. Izaak Walton League

The Izaak Walton League of America was founded in 1922 as a national organization of hunters, anglers, and other conservation-minded outdoor enthusiasts who work through volunteer community-based action and education programs to ensure the sustainable use of America's natural resources.

The Save Our Streams (SOS) program provides a framework for citizen monitoring through training, involvement, and advocacy. The SOS approach emphasizes biological indicators of stream health, but in many cases, SOS volunteers also do chemical and physical monitoring of

water bodies that include wetlands. The Stream Doctor program encourages informed advocacy through activities such as clean-ups and restoration plantings.

The Iowa Division of the IWLA and the Des Moines Chapter re-started the national SOS program in 1973 with the adoption of Beaver Creek. Both continue to support SOS-related projects. Several other local chapters in the state support SOS projects, including the Linn County Izaak Walton League's award winning program that focuses on the Cedar River and its tributaries.

The Iowa Division was organized in 1923. The division's fight for water quality in the state began in 1924, when several of the Chapters initiated campaigns to pass bond issues for cleaning up sewage waste being dumped into the Cedar River. Additional issues the Iowa Division has been involved in includes:
legislation in 1931 to create the Iowa Conservation Commission, which took the fish and wildlife management decisions out of politician's hands,
development of Iowa's first 25-year Conservation Plan, detailing acquisition dates for protecting various areas, and how to train and employ conservation professionals,
legislation in 1955 requiring roadside parks to be included in all highway construction plans,
development of Operation Litterbug, and Plant Iowa,
development of Uncle Ike, an environmental education program for elementary students,
support of the state's Resource Enhancement and Protection Program, and promoting sustainable agriculture practices across the state.

3. Iowa Natural Heritage Foundation

The Iowa Natural Heritage Foundation works to protect Iowa’s water, land and wildlife by building partnerships and education. Current priorities include: permanent land protection of unique natural areas through easements, donations or sales; trail and greenway establishment; and promotion of improved land management.

INHF is a private non-profit organization with more than 4,500 members which through their membership fees, as well as major grants, fund projects. Project development typically involve not only private landowners, but also County Conservation Boards and Iowa IDNR who typically manage those protected areas donated to the state or county.

Currently, there are more than 60 land protection projects throughout Iowa which include; wetland restoration, river and stream enhancement, soil and water quality protection, environmental education and prairie restoration.

4. Sierra Club

The Sierra Club, founded in 1892 by John Muir, is one of the country's leading grass-roots conservation organization. Its goal is the exploration, enjoyment, and protection of the wild places of the earth. In addition, the Sierra Club promotes the responsible use of resources, and

educates and enlists citizens to protect and restore the quality of the natural and human environments.

The Sierra Club's Clean Water Campaign over the next two years will focus primarily on three areas: Concentrated Animal Feeding Operations (CAFOs), wetlands protection, and water quality. In addition, the SPARE America' Wildlands program includes five approaches to stop the destruction of our wild places and open spaces:
Smart growth – managing suburban sprawl
Preservation –designated lands as permanently protected
Acquisition – purchasing both urban and wild lands to protect it
Restoration – recovering what has been lost and restoring to natural state
End of commercial logging – end logging of National Forests and other federal lands

The Iowa Chapter of the Sierra Club campaign to protect the Eddyville Dunes reflects the Sierra Club's objective to protect our national and neighborhood wild places and open spaces. A highway bypass project was proposed to be located through the Eddyville Dunes, home to several rare wetland and prairie species. Members working with the IDNR, IDOT, the Federal Highway Administration, the Iowa Environmental Council, and other concerned citizens, have drafted a plan to avoid the Dunes and develop an alternative route for the bypass.

5. Trees Forever

Trees Forever is an Iowa-based not-for-profit organization that has been the catalyst for projects in all of Iowa's 99 counties and in over 400 Iowa communities. Trees Forever is committed to responsible, long-term stewardship of forests, water, land, and air through locally-oriented projects that involve people. Trees Forever's Mission is " To facilitate the planting and care of trees and forests through action-oriented programs that empower people, build community, and promote environmental awareness.

In the past ten-year history of Trees Forever, the major emphasis has been promoting and supporting projects to establish tree, shrub, and grass plantings across the state. On the ground efforts include community forests; planting residential trees, shrubs, and grasses; extensive roadside projects; and more recently stream side buffers.

Water quality is an important issue to every Iowan, and Trees Forever is working with several partners on a revolutionary, first-of-its-kind program, the Trees Forever Iowa Buffer Initiative. This project focuses on putting demonstration projects on the ground, utilizing the riparian management technology developed by the Agroecology Issue Team of the Leopold Center for Sustainable Agriculture.

The goal of the Buffer Initiative is to increase awareness and utilization of long-term land management practices and their impact on water quality, soil erosion, landscapes, and wildlife. Outcomes of this project will be the development of:
100 demonstration and research sites that showcase buffer management techniques, 20 each year for 5 years,

a network of technical assistance to support landowners,
shelterbelts as buffers around livestock confinement operations,
a recognition program for landowners who protect streams and waterways with grass and tree buffers, and
field days for farmers, rural landowners and youth to increase awareness of the value of buffers.

Local chapters in the state are often partners in various water quality projects. Support is provided in terms of funding, educational or technical assistance, or other available resources

D. Sportsmen Organizations

1. Ducks Unlimited, Iowa

Ducks Unlimited (DU) is the largest non-profit wetland organization in the world. DU's mission is to preserve and restore waterfowl habitat throughout North America and reflects a strong emphasis in the prairie regions of the US. There are more than 21,000 DU members in Iowa who collectively donated more than $2 million in 1998 for conservation efforts.

Since 1984, DU has increased its efforts to work with government conservation agencies and volunteers to conserve wetlands. Through collaboration and leveraging of funds, DU has conserved more than 30,000 acres of wetlands and adjacent uplands in Iowa at a cost of more than $2 million.

Efforts are typically targeted towards three practices; preserving existing wetlands through acquisition or conservation easements, restoring drained wetlands, and wetland enhancement. DU has worked with IDNR, NRCS, county conservation boards and others and intends on adding staff in the near future.

2. Pheasants Forever

Pheasants Forever (PF) is a national organization dedicated to protect and enhance pheasant and other wildlife populations through habitat improvement, public awareness and education, and land management to benefit landowners and wildlife. PF was founded in 1982 and has grown to 16,500 members in ninety-eight chapters in Iowa.

Since 1987, more than $9 million has gone towards habitat improvement in Iowa. Efforts include: woody winter cover areas 16,000 acres and more than 5 million trees planted; 39,000 acres of land acquisition; 130 acres of wetland restoration; 6,700 acres of nesting cover and 17,000 acres of food plots.

In 1999, PF worked with IDNR, NRCS, SWCDs, and DSC to develop a Conservation Buffer Partnership to assist in contracting acres in the Conservation Buffer Initiative. Funds were used to leverage additional NRCS temporary staffing hours to NRCS field offices. This resulted in 26,000 acres enrolled in the Buffer Initiative in Iowa. Practices include riparian buffers, filterstrips, wetlands, waterways in 3,300 contracts.