The implementation of public policy: a sociological examination of a watershed project using grounded theory

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The implementation of public policy: A sociological examination of a watershed project using grounded theory

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James E. Malia 

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CHAPTER I

INTRODUCTION

Public policy is the means government uses to intervene in a society to bring about change that is perceived to be for the common good of that society. The formulation and implementation of public policy has played an increasingly important role in modern society as the power and influence of government, particularly the federal government, has increased in response to a more complex and differentiated society. The state has assumed greater "responsibility for the functioning of the economy, for the social welfare of the population and for the provision of all services not adequately supplied by the private enterprise system" (Scharpf 1977:340). Public policy may be implemented through such means as taxes, laws, regulations, programs, and projects. Public policy generally calls for change in the behavior of some target group and may entail the construction of physical structures which complement the desired personal change or in other ways promote the general welfare. For instance, the state has been particularly active in providing infrastructure facilities needed by profit-making enterprises when the facilities themselves can not be profitably provided (Scharpf 1977:340). Examples of such facilities include roads, irrigation systems, and flood control devices.

The involvement of the federal government in many of these projects is conditional on the active participation of local people and groups. This requirement is consistent with our dominant societal values of individualism and democracy. Individualism supports the belief that people and communities should be able to choose how they are to live their lives and what their communities will be like. The democratic tradition requires that people should have a voice in shaping the programs and policies that affect them.

Thus, many of the infrastructure facilities built by federal agencies have been constructed with the agreement that local sponsors would retain responsibility for the operation and maintenance of the structures and, ultimately, for their replacement if needed (Van Meter and Van Horn 1975:468). Federal money was used as seed money to initiate projects and to quickly solve immediate problems which were too big and expensive for local capabilities. Once through the initial phase, however, local groups were expected to continue the project and to maintain the facilities which had been built with public money.
Federal agencies assumed that once their involvement was completed, the project and its stated objectives would continue without government assistance.

Because the concretization of policy continues long after the formal policy-making process is complete, the ultimate effects of policy initiatives may not be what was originally intended (Ham and Hill 1984:105). As a result, many policies do not achieve their stated objectives. The responsible federal agency is then caught in a dilemma: it is unable to directly intervene to "fix" the problem and to get the policy back on track, but it retains an interest in the project to ensure that the original intent of the policy is not severely compromised.

The Little Sioux Watershed in Western Iowa is a case in point. Less than 50 miles wide, the area stretches some 135 miles along the Iowa-Nebraska border beginning in Southern Minnesota and extending approximately half-way between Sioux City and Council Bluffs, Iowa. The area is characterized by rugged hills and fragile loess soils. By the early 1940s, it was recognized that commercial agricultural activity through the past half-century had caused severe soil erosion and flooding which was destroying the social and economic viability of the area. In response, the Soil Conservation Service (SCS) in 1946 initiated the Little Sioux River Basin Watershed and Flood Prevention Project (the Little Sioux Watershed Project). The program provided for:

1. the treatment of farm lands in the loess-covered portion of the watershed to reduce runoff at its source, and minimize erosion;

2. the building of structures to control major gullies; that is, gullies so large they cannot be stopped by individual action (House Document No. 268, 78th Congress 1943:1).

Actual construction of flood control and grade stabilization structures began in 1948. In implementing these projects, agreements were entered into by SCS and local sponsors. The respective sponsors acquired or otherwise provided for land rights permitting construction of various types of dams and spillways. The SCS provided funds and supervised construction of these structures. Local sponsors agreed with SCS to continue the integrity of the structures by providing maintenance, repairs, and replacement as necessary (Joint Agreement 1988).

In large part, the objectives of flood control and soil conservation have been achieved. A current inventory of project structures, however, indicates variation in conditions of maintenance of the structures and perhaps varying awareness, understanding,
or interpretation of expectations between SCS and local sponsors for maintenance of the structures (Joint Agreement 1988). Over time, the codified agreement of local responsibility for maintenance has eroded to the point where now, at least from the perspective of SCS, many of the structures are inadequately maintained, threatening the continued integrity of the project.

The Research Problem

As described above, it is common for the federal government, which has assumed increasingly greater responsibility for the public welfare (Hamlin 1986), to be forced by cultural convention and law to give responsibility for long-term implementation of public projects to local sponsors. For their part, local sponsors may redefine the policy and implementation strategy in ways which are consistent with their perception of the problem and their available resources. Local solutions may be inadequate to address the larger societal need which was the goal of the original policy. Hence, the policy does not achieve its stated objectives and the societal good may be compromised.

The problem is further complicated for the federal government. It retains an interest in the projects to safeguard the public's original investment and to fulfill its responsibility of promoting policies and programs which serve the common good. Should the projects fail, the federal government would be called upon again to resolve the problem. The government, understandably, would prefer that the projects not fail so that it can use its limited resources to address new yet unresolved problems.

The research problem for this dissertation, then, is:

1. to learn how implementation strategies can be better devised to increase local compliance with policy objectives and to minimize policy drift;
2. to learn how an outside agency, the federal government for example, can retain influence on the direction and integrity of a policy over which it has no formal control.

The Little Sioux Watershed program provides the empirical base for this research. The study examines the operation and maintenance of the watershed structures in selected counties of the watershed area to derive a grounded theory of how local actors implemented policy objectives delegated to them by the original project agreement. The derived theory is then compared with extant implementation theory and literature to determine how it might be
generalized to other situations. Recommendations for improving policy implementation strategies and for retaining influence with local sponsors are suggested.

The Research Perspective

The study is conducted within a traditional sociological framework which assumes that change is a constant fact of social life; that the direction and influence of change must be accounted for in explaining social phenomena; that social interaction and social process are at the core of sociological investigations; and that it is necessary to grasp actors' viewpoints to understand interaction, process, and social change (Strauss 1987:6). Implementation literature and theory is used within this framework to structure the inquiry process and to expand the explanatory power of the derived theory from the Little Sioux Watershed Project to other like situations.

Conventional studies of the policy implementation process have been concerned with the nature of policy, the inter- and intra-organizational context within which it is implemented, and the external world on which it is expected to have impact (Ham and Hill 1984:100). These studies have generally assumed a predictable social world controlled in hierarchical fashion by policy makers and public officials who by various incentive mechanisms shape the behavior of target actors to conform to some preconceived notion of the common good (Hjern and Hull 1982:107).

If, however, change is assumed as a constant of the social world, policy implementation may then be viewed as a continuous process of interaction with a changing and changeable policy situation and intentions (Ham and Hill 1984:108). From this perspective, implementation studies must in some way speak to the dynamic quality of this world (Wittrock and deLeon 1986). The linkages between the various actors and their relation to the policy through the various stages of the policy implementation process provides a beginning point in trying to understand any dynamic implementation experience (Kiviniemi 1986:260).

The dynamic approach includes an examination of the interests and perspectives of the target groups (Hjern and Hull 1982:105, Kiviniemi 1986:253). This perspective challenges the researcher to understand the unique activities of individuals from a local perspective without preconceived notions of what that behavior should be. The assumption is made that policy is not the only or even the major influence on the behavior of people. By
studying policy implementation from a local perspective, the researcher is able to better
understand the impact other influences have on the point where private choice and
administrative action intersect (Elmore 1979-80:604).

A local perspective is particularly useful for this study. The Soil Conservation
Service has given the local sponsors responsibility for the operation and maintenance of the
watershed structures. Other than legal sanctions, which it is reluctant to use, and informal
persuasion, SCS is powerless to influence the behavior of the local sponsors relative to the
maintenance of the structures. It is a fluid, indeterminate world in which SCS and the local
sponsors interact for the purpose of maintaining and operating the structures.

Another level of analysis for the study of policy implementation is to examine socio-
cultural influences. Policy is a reflection of the larger dominant society which is the source
of acceptable definitions of the common good and of the parameters within which solutions
may be sought (Guba 1985, Ham and Hill 1984). These influences color both how a policy
is designed and put into practice as well as how it is or is not accepted by target actors. The
contradictions inherent in our social and economic system may lead to contradictions in the
implementation of policy. As a result, many policies do not achieve their stated purpose.

Social order is an ongoing human production and exists only as a product of human
activity (Berger and Luckmann 1966). To successfully implement policy, one must
acknowledge this dynamic and understand its operation within the specific domain of the
policy. The investigator must understand the meanings which actors bring to their public,
the processes they use to define and impose meaning on various elements of their world, and
ultimately, the meanings and understandings they take from their world to guide their day-to-
day living relative to the policy in question. The definitions and meanings which local actors
place on elements of the policy world structure their behavior in a way which is consistent
with these definitions. Such definitions may well conflict with the definitions and
understandings of the actors who make and implement the policy.

The definition and meaning which relevant actors give to conservation and to
conservation practices and how these meanings differ between groups of actors is another
important avenue of investigation. The Little Sioux Watershed program is premised on
specific assumptions regarding the importance of conservation: what it is, and how it is to be
practiced. The degree of congruence between the norms expressed in the policy and the
norms and practices of those charged with implementing the policy may account for
divergence in implementation of the policy. Another issue which turns on understanding
definitions and meanings has to do with who owns the watershed structures. If the local perception is that the structures are owned by the federal government because they were built with federal funds, then local actors may be less committed to caring for them.

The above perspectives are used to develop research questions to guide the investigation of the Little Sioux Watershed program. These questions are:

1. What understanding, knowledge, and perceptions do local actors have of their obligations for the maintenance and operation of the watershed structures?

2. What are the links among the various actors, and how do these linkages support or deter implementation of the stated policy?

3. How do the various actors understand soil conservation, and how does this understanding shape their behavior and their assignment of responsibility for maintenance of the watershed structures?

4. What does private property mean to the various actors, and how does this understanding shape their acceptance and cooperation relative to the maintenance of the watershed structures as well as attendant soil conservation activities?

5. What factors in the broader environment impede or support appropriate maintenance activities?

Objectives of the Study

To accomplish the purpose of this study, the following objectives will be completed.

1. to gather data from primary and secondary sources to be used to derive a substantive implementation theory;

2. to derive a grounded theory explaining local actor behavior relative to the maintenance of the Little Sioux watershed structures;

3. to derive a general theory of policy implementation and to compare this derived theory with other implementation theories;

4. to make recommendations for improving implementation strategies.

Methods

Research for the dissertation was completed in conjunction with a study undertaken by Iowa State University's Department of Sociology and Anthropology for the Soil
Conservation Service (SCS). The purpose of this study was to examine watershed structure maintenance issues in Western Iowa. Data were obtained from personal interviews with current and past decision makers, public officials, and other individuals who have knowledge about the watershed structure program in the Western Iowa counties of Cherokee, Ida, Monona, Plymouth, and Woodbury. The dissertation, however, focuses only on the counties of Ida, Monona, and Woodbury. Data from the other two counties, thus, is not included as part of the dissertation analysis.

Sixty-five state, area, and local SCS officials, local sponsors (district commissioners and county boards of supervisors), and landowners were interviewed for the dissertation. Interviews were based on a prepared questionnaire which consisted of both closed- and open-ended questions. Because the interview protocol was sufficiently flexible to allow for additional questions, questioning was not limited to the questionnaire.

Because subjects had to be knowledgeable about the operation and maintenance aspects of the watershed program, a key informant strategy was used to select interviewees. In this way, limited time and resources were used most efficiently to obtain quality information (Moede-Lex 1986).

Historical data were gathered from the archives of the Little Sioux Watershed Project. While not a complete record, the archives provide data on the early history of the project, the organizational agreements, and the project's early successes and problems. The archives also provide information about people's initial understanding of the project and the value and importance they saw in it. This information is used to complement more recent data to provide a perspective on the continuity and change that has taken place within the project and within the Little Sioux area.

A grounded theory methodology is used to analyze the data and to generate theory. Grounded theory is defined "as theory generated from data systematically obtained and analyzed through the constant comparative method" (Conrad 1978:102).

Using the research questions as a guide, situations and factors that influenced the implementation process in the Little Sioux area are identified and analyzed by systematically examining similarities and differences among the groups which are the focus of the study (Glaser and Strauss 1967:36). Key concepts and their properties are defined and integrated into a substantive theory to explain local implementation of the operation and maintenance of the watershed structures in the Little Sioux Watershed. The derived theory is then compared
to conventional implementation theories to see how it might be generalized to other situations.

Conclusion

The following chapter reviews implementation literature and theory from the various perspectives described earlier in the present chapter. The purpose of this review is to develop a general implementation framework to aid in the analysis of the data and to provide a comparative basis for the derived implementation theory, as well as to provide a basis from which to generalize the derived theory.

Chapter 3 first describes the grounded theory methodology. Then it describes how the data were collected and analyzed. Finally, the chapter describes how the theory is derived.

Chapter 4 provides background information for the study. The Little Sioux watershed area is described along with the watershed program and the key actors. Historical as well as macro-social and economic factors that have impacted the area are included as part of the discussion.

Because case studies are an effective means to relate what has happened in a particular situation, they are the prevailing mode of empirical inquiry for implementation studies (Montjoy and O'Toole 1979:467). In Chapter 5, three case studies, one for each target county, are presented to describe the implementation of the watershed program within the respective county.

Chapter 6 presents the derived theory and discusses its relevance for the Little Sioux Watershed area.

Chapter 7 compares the derived theory with other implementation theories to see how insights gained from the examination of the Little Sioux Watershed might be applied to other similar situations.

Chapter 8 offers recommendations for designing better implementation strategies and for ways an outside agency can continue to influence a policy situation in which it is no longer formally involved. The initial discussion focuses on the Little Sioux area. A follow-up section makes recommendations of a more general nature.

The concluding chapter offers a summary of learnings and makes suggestions for further research in this area.
CHAPTER II
PUBLIC POLICY AND POLICY IMPLEMENTATION

This chapter reviews literature pertaining to the implementation of public policy, discusses issues raised in the literature, and develops a core set of assumptions which guide the study. Material discussed in this chapter will be used later to examine the policy implementation theory derived from the experience of the Little Sioux Watershed program. This analysis will assess the usefulness of the derived theory for describing policy implementation failures in other situations. The chapter begins with a brief description of public policy.

Public Policy

The formulation of public policy "is a complex process reflecting the influence of multiple actors, existing societal conditions, conceptual paradigms that prevail in the minds of both the populace and elites, estimates of the resources available - physical and institutional - and perceived costs and benefits of proposed courses of action" (Mann 1981:5).

Public policy is a normative activity. It is a process charged with the responsibility of bridging the gap between the current reality of a social problem and some better future state which resolves the issue of concern. The definition of the problem and the negotiated solutions to it are socially-constructed realities which reflect the values and ideologies of individual actors as well as those of the larger socio-cultural milieu within which the problem and policy are defined (Shadish 1984:725). The definition of the problem, its solution, and who is doing the defining are thus key issues to understand. For example, the values and norms around issues relating to soil conservation can be very different for an urban bureaucrat and a Western Iowa farmer. Each, therefore, would in all probability formulate a very different soil conservation policy.

One way to view public policy is as the means government uses to intervene in a society to bring about change that is perceived to be for the common good of that society. The core assumption of this perspective reflects a liberal-democratic bias that policy is a prescriptive mechanism designed by elected representatives and implemented in a
subordinate manner by public officials (Ham and Hill 1984:108). In other words, government knows what is best for society and, because it has political power and the control of resources, it has the responsibility to translate its notion of the good into action to benefit all of society.

From this perspective, public policy is imposed and maintained through some coercive mechanism and has the following characteristics:

1. an overt intent, or an official expression of intentions concerning the end state of affairs;
2. a provision for inducements, either positive or negative, or both;
3. programmed resource flows;
4. actual resource flows; and
5. some actual impact on society (Gustavsson 1980:136).

This perspective assumes that a policy will unfold to its prescribed ends once the implementation process has been initiated.

Policy decisions are thus equated with policy actions. This perspective assumes that if management structures and processes, channels of communication, and clarity of communication are right, then effective action will be assured (Barrett and Fudge 1981:9). Control and compliance are key concepts for understanding policy from this perspective.

The policy-equals-action equation does not hold in reality. Governments at all levels are "adept at making statements of intention, but what happens on the ground often falls a long way short of the original aspirations" (Barrett and Fudge 1981:3). The Little Sioux Watershed program provides an example of this discrepancy. The policy which originally formulated the program stipulated that the maintenance and operation of the structures were to be the responsibility of the local sponsors. Today, however, the continuing viability of that arrangement is being called into question. In this instance, policy and action have not been synonymous.

An alternative approach to public policy describes it as a continuous process of interaction between government and local actors for the purpose of defining social problems and negotiating the means to solve these problems. What is "good" for society is worked out through a complex process of bargaining and negotiation (Ham and Hill 1984:109). The policy is never settled. It is in a constant state of flux as it responds to an ever-changing
world (Elmore 1978). Policy from this perspective is maintained through the voluntary acceptance of the policy's prescriptions (Barrett and Fudge 1981).

Both perspectives are important in considering public policy. The normative view of policy maintains that there are fundamental values that need to be reflected in how people interact with one another and with the institutions that make up our society. Further, this perspective acknowledges the legitimate role of government to ensure that these values are actually reflected in interactions and that all citizens have access to the goods and benefits produced by our society. The action perspective draws attention to a changing and changeable world and to the forces that shape that world and, in the process, reshape the policy that seeks to alter it. Failure to understand public policy at this level may well lead to the development of inappropriate and ultimately ineffective policy (Elmore 1978:226).

Regardless of how they are contrived, if policies are to have an impact, they must be successfully implemented, which means humans must design action solutions to concrete situations (Argyris et al. 1985:19). Hence, for a policy to actually exist, it must be implemented and produce outcomes which, ultimately, become the measure of that policy (Guba 1985:11).

In practice, policy and implementation are linked in a symbiotic relationship. The purpose and design of the policy set parameters to be translated into action. At the same time, even as the policy becomes action, it is changed and modified to better "fit" with local conditions and concerns (Pressman and Wildavsky 1984:170). For the purposes of analysis, however, policy and implementation are generally separated. Thus, the focus of the present study is on the implementation aspects of public policy.

Linder and Peters (1987) provide a dissenting view to the importance of implementation studies. They believe that too much importance has been placed on implementation at the expense of good policy design. Their concern is that implementation studies will limit policy and program development to only those solutions which policymakers know can be implemented. From this limited perspective, implementation studies are nothing more than feasibility studies used to inform the policy-making process for ensuring its success. By concentrating on the mechanics of implementation, one ignores the larger issues raised by the policy in question. It is their contention that policy implementation must be informed by political, economic, and ethical criteria as well.

In contrast to Linder and Peters, Ham and Hill (1984:108) discuss the power of the implementation process to shape extant policy and, in effect, to create new policy irrespective
of the policy's original intent. For this reason, understanding how policy is ultimately implemented in the field is crucial to understanding public policy and to understanding the resolution of social problems. Hence, the focus of this study is on the implementation of policy and only incidentally on its design. The issues raised by Linder and Peters will be addressed later in this chapter.

One's perspective on how policy is designed shapes one's perspective on how policy should be implemented and ultimately on how best to study the subject. This study will adopt an interaction perspective to examine the implementation of the Little Sioux Watershed program. Thus, for the purposes of this study implementation is viewed as "a process of interaction and negotiation, taking place over time, between those seeking to put policy into effect and those upon whom action depends" (Barrett and Fudge 1981:4).

The balance of this chapter reviews some of the important policy implementation literature and presents alternative ways to study and understand the implementation of public policy.

Public Policy Implementation

The study of implementation has received much attention over the years, particularly since the mid-1970s when public officials began to be increasingly concerned that the large number of programs initiated during the 1960s to solve social problems were not achieving their intended results (Hogwood and Gunn 1984:196). Policy-makers wanted to know why these programs were having limited impact on the problems they were intended to alleviate. As a result, the study of policy and program implementation became an integral part of policy analysis and of policy evaluation (Pressman and Wildavsky 1984:182-184). The importance of implementation analysis was indicated by Hargrove (1985), who described it as the missing link in policy analysis.

The study of implementation begins by looking at elements of the policy development process that influence the implementation process. These elements are:

1. an environmental system, from which demands and needs arise, and upon which policy seeks to have an effect;
2. a political system in which policy decisions are made; and
3. an organizational system through which policy is mediated and executed (Barrett and Fudge 1981:8).
The challenge for implementation studies is to understand and explain how these systems operate and interact over time to influence policy development, and how they impede or support implementation activities. Further, because there is a difference between policy and action, a second challenge for implementation studies is to examine the process that actually translates policy into action and to understand and describe the factors that influence that process.

Policy implementation is simply defined as "those actions by public and private individuals (or groups) that are directed at the achievement of objectives set forth in prior policy decisions" (Van Meter and Van Horn 1975:445). Implementation analysis "examines those factors that contribute to the realization or non-realization of policy objectives" (Ham and Hill 1984:448). Two general perspectives are considered as a means to examine policy implementation.

From a top-down, policy-as-prescription perspective, implementation analysis takes a "policy-centered" approach. This approach assumes that policy is the starting point for action, and implementation is a logical step-by-step progression from policy intention to action. This approach may be considered as the policy-maker's perspective, since it represents how policy-makers are implementing policy (Barrett and Fudge 1981:12).

On the other hand, if policy is considered as interaction, implementation analysis uses an "action-centered" approach. This approach takes as its starting point what actually happens or is accomplished and seeks to understand how and why. The action centered approach focuses attention on the behavior or action of groups and individuals and the determinants of that behavior. It seeks to examine the degree to which action relates to policy, rather than assuming that action follows from policy. "From this perspective, implementation (or action) is regarded as a series of responses to ideological commitment, to environmental pressures, or to pressures from other agencies (groups) seeking to influence or control action" (Barrett and Fudge 1981:12-13). These two approaches are discussed below.

The policy-centered or top-down approach

Traditional studies of the implementation process have been concerned with the nature of policy, the inter- and intra-organizational context within which it is implemented, and the external world on which it is expected to have impact (Ham and Hill 1984:100). These studies have generally assumed a predictable social world controlled in hierarchical
fashion by policy makers and other public officials who by various incentive mechanisms shape the behavior of target actors to conform to some preconceived notion of the common good (Hjern and Hull 1982:107). It is a world defined by the printed word and binding contracts, in contrast to the everyday world which is defined by the spoken word and open-ended negotiation (Elmore 1978). A common theme in many of these studies is that implementation strategies can be programmed or planned in advance (Wittrock and deLeon 1986:46).

One approach is to describe implementation in terms of perfect administration (Hood 1976). The assumption of this approach is that the more nearly real-world implementation schemes approximate the ideal structure, the more likely it is that policy objectives will be realized.

Gunn (1978) follows a similar approach by describing criteria that, if met, will increase the possibility for successful implementation. His approach epitomizes the bureaucratic, top-down approach to policy implementation. His preconditions are:

1. that circumstances external to the implementing agency do not impose crippling constraints;
2. that adequate time and sufficient resources are made available to the programme;
3. that not only are there no constraints in terms of overall resources but also that, at each stage in the implementation process, the required combination of resources is actually available;
4. that the policy to be implemented is based upon a valid theory of cause and effect;
5. that the relationship between cause and effect is direct and there are few, if any, intervening links;
6. that there is a single implementing agency which need not depend upon other agencies for success or, if other agencies must be involved, that the dependency relationships are minimal in number and importance;
7. that there is complete understanding of, and agreement upon, the objectives to be achieved; and that these conditions persist throughout the implementation process;
8. that in moving towards agreed objectives it is possible to specify, in complete detail and perfect sequence, the tasks to be performed by each participant;
9. that there is perfect communication among, and coordination of, the various elements involved in the programme; and
10. that those in authority can demand and obtain perfect obedience.

Gunn makes no claim that the conditions described by these criteria actually exist or are achievable in the real world. Rather, it was his intent to present a series of ideal types which policy implementers could seek to maximize to better achieve the policy's objectives (Gunn 1978:176).

Continuing within the control tradition, Sabatier and Mazmanian (1981) develop a more complex model of implementation that addresses "macro-level legal and political variables that structure the entire process" (Sabatier and Mazmanian 1981:3). The model includes both independent and dependent variables. The independent variables describe the tractability of the problem and the ability of the statutes to structure the implementation process. The dependent variables correspond to the actual stages of the implementation process, which are: policy outputs, compliance by target groups, actual impacts, perceived impacts, and major revision in the statue (Sabatier and Mazmanian 1981:7). Sabatier and Mazmanian identify five conditions which must be met if implementation is to be effective:

1. that the program is based on a sound theory relating changes in target group behavior to the achievement of the desired end state (objectives);

2. that the statute (or other basic policy decisions) contains unambiguous policy directives and structures the implementation process so as to maximize the likelihood that target groups will perform as desired;

3. that the leaders of the implementation agencies possess substantial managerial and political skill and are committed to statutory goals;

4. that the program is actively supported by organized constituency groups and by a few key legislators throughout the implementation process, with courts being neutral or supportive; and

5. that the relative priority of statutory objectives is not significantly undermined over time by the emergence of conflicting public policies or by change in relevant socio-economic conditions that undermine the statute's technical theory or political support (Sabatier and Mazmanian 1981:10-24).

Van Meter and Van Horn (1975) provide a somewhat different approach to implementation analysis. They continue to focus primarily on policy, but they expand their area of analysis to include environmental factors and the multiplicity and complexity of linkages between organizations. Their dynamic model of implementation includes
environmental and organizational variables that influence the delivery of public services. Their six clusters of variables are:

1. relevance of policy standards
2. policy resources
3. inter-organizational communication and enforcement activities
4. the characteristics of the implementing agencies
5. the economic, social, and political environment affecting the implementing jurisdiction or organization
6. the disposition of implementers for carrying out of policy decisions (Van Meter and Van Horn 1975:483).

Another theory describes implementation as a function of the specificity of the policy mandate and the availability of resources. The more specific the mandate, and the more available the resources, the better the chance that the policy will be successfully implemented (Montjoy and O'Toole 1979:466). This perspective assumes consensus of purpose as well as clarity and consistency of communication.

An implicit assumption of the top-down or policy-centered approach to implementation analysis is that policy makers control the organizational, political, and technological processes that affect implementation (Elmore 1979-80:603). Thus, when target behavior does not conform to expected standards, a typical response is to blame target actors and to examine the implementing agency in an attempt to determine what went wrong so that the implementation process might be fixed and the policy put back on track. The operative assumption is that implementation problems are resolved by coercing those charged with implementing public programs to conform to policy regulations (Linder and Peters 1987:461). A high priority for this approach is to improve communication to increase target actors' understanding of the policy and the obligations it imposes on them.

The traditional, policy-centered approach is limited. It assumes a static social reality that can be controlled and manipulated by the policy-making agency. Such a reality does not exist. Though valuable insights may be gained by this approach, an alternative method which examines the reality definitions and behaviors of target actors may prove more fruitful.
The action-centered or bottom-up approach

The social world is highly complex. Thus, implementation cannot be viewed against the background of a static set of circumstances but must in some way speak to the dynamic quality of that world (Wittrock and deLeon 1986). This notion of public policy begins with an assumption of ambiguity rather than order (Steinberger 1981:29). Individual actors bring their unique experiences to each situation to mutually define the situation and to, in effect, create reality (Guba 1985:13). Social order is an ongoing human production and exists only as a product of human activity (Berger and Luckmann 1966). To successfully implement policy, one must acknowledge this dynamic and understand its operation within the specific domain of the policy.

The bottom-up or action-centered approach assumes that policy-makers have a strong interest in affecting the implementation process and the outcomes of policy decisions. However, the perspective challenges the assumption that policy makers ought to, or do, exercise the determinant influence over what happens in the implementation process. It also questions the assumption that explicit policy directives, clear statements of administrative responsibility and well-defined outcomes will necessarily increase the likelihood that policies will be successfully implemented (Elmore 1979-80:605).

This perspective challenges the researcher to understand the unique activities of individuals from a bottom-up perspective without preconceived notions of what that behavior should be. The assumption is made that policy is not the only or even the major influence on the behavior of people. By studying policy from the bottom up, the researcher is able to better understand the impact other influences have on the point where private choice and administrative action intersect (Elmore 1979-80:604).

Barrett and Hill (1981:19) describe the advantages of the bottom-up approach as follows:

To understand the policy-action relationship we must get away from a single perspective of the process that reflects a normative administrative or managerial view of how the process should be, and try to find a conceptualization that reflects better the empirical evidence of the complexity and dynamics of the interactions between individuals and groups seeking to put policy into effect, those upon whom action depends and those whose interests are affected when change is proposed. To do this, we have argued for an alternative perspective to be adopted - one that focuses on the actors and agencies themselves and their interaction, and for an action-centered or bottom-up mode of analysis as a method of identifying more clearly who seems to be influencing what, how and why (cited in Ham and Hill 1984:107).
From this perspective, implementation must be considered in terms of the nature of inter- and intra-organizational power relations, the interests of implementation agencies and the people in them as well as the overall political process which shape what actually does and does not get done (Barrett and Fudge 1981:20).

The assumption of coercion, which is at the core of the top-down approach, has no place in the action-centered approach.

Since other actors cannot be coerced, their consent must be obtained. Bargaining must take place to reconcile the difference, with the result that the policy may be modified, even to the point of compromising its original purpose. Coordination is thus another word for consent (Pressman and Wildavsky 1984:134).

In such situations, implementers are not passive agents who receive policy, but are semi-autonomous groups actively pursuing their own goals and objectives which may or may not be in accord with the objectives of the policy-makers. It is a pro-active environment rather than a reactive one, where success is measured by the implementers in terms of their own definition of the situation or problem, even if it might be defined as a failure by the policy-makers (Barrett and Fudge 1981:28).

Implementation is not the imposition of a set program but is a process worked out over time by interested actors. Performance, rather than conformance to policy objectives, is the standard for success, and compromise is a means of achieving performance albeit at the expense of some of the original intentions (Barrett and Fudge 1981:21).

This fluid or dynamic understanding of implementation means that:

"policy implementation has no clear, decisive end point. The outcome of one bargaining episode is the starting point of the next. Success in bargaining is completely relative in one important respect: Each participant judges success in terms of his own objectives, not in terms of an overall set of objectives that applies to all participants" (Elmore 1979-80:611).

Policy outcomes will never be discrete, determined end points that can be measured and objectified. The policy is never completely implemented but goes on and, in the process, is transformed by time and new circumstances.

Berman (1978) distinguishes between macro-implementation and micro-implementation. He defines macro-implementation as the means used by the federal government to influence local delivery systems to behave in desired ways; micro-implementation is defined as the response of local organizations and individuals to devise
and carry out their own internal policies (Berman 1978:164). The effective power, therefore, to determine a policy's outcome rests, not with federal administrators, but with local policy implementers. The power of local actors derives from their expertise, skill, and proximity to the essential tasks that are needed to accomplish the objectives of the policy. The possession of power by local actors opens the possibility for real negotiations, which they may use to ensure that the final effects of the policy are compatible with local needs and capabilities. By studying this negotiating process for any implementing experience, the analyst can gain insight into the overall process of how policy is changed to meet local needs (Elmore 1979-80:606).

Because the effective power to influence policy outcomes resides at the base of the macro structure with the local implementers and the "street level" bureaucrats (Lipsky 1980), higher authorities can only influence this process indirectly (Berman 1978:171-172). From the local perspective, therefore, implementation is the carrying out of local policy rather than federal policy. "If local priorities do not accord with those of the federal government, adoption decisions may be merely pro forma" (Berman 1978:177), and the commitment to the policy will wane quickly once the local objective has been achieved. Unless the practice is deliberately institutionalized in the sense of it becoming incorporated into a standard set of operating procedures, the original intent of the policy will probably not be achieved.

The issue of micro-implementation raises several important questions for the present study. Among them are:

1. What was the intent of the local sponsors in signing the original agreements with the Soil Conservation Service? Was their intent merely to obtain governmental assistance, or to carry out the intent of the agreements?

2. What efforts were made by the Soil Conservation Service to routinize the maintenance expectations called for in the original agreements?

3. What patterns of implementation were established early in the program that were detrimental to the long-term viability of the policy's objectives?

4. How did the local area change over time to reinforce or impede the implementation of the policy?

Often overlooked in the policy-implementation process are the interests and perspectives of the target groups (Hjern and Hul 1982:105, Kiviniemi 1986:253). The
action approach to policy implementation must also understand the world of the implementers. The implementers of policy initiatives live out their daily lives in a world bounded by the meanings they impose on the phenomena about them. It is these meanings which give credence and purpose to human activity, structuring their activity in a manner which is consistent with these meanings. From a policy-implementation perspective, the definitions and meanings which target actors place on elements of the policy world structure their behavior in a way which is consistent with these definitions (Fudge and Barrett 1981:264-265). Such definitions may well conflict with the definitions and understandings of the actors who make the policy. This clash of reality definitions may well account for much of the failure of policy.

A final level of analysis for the study of policy implementation is to examine socio-cultural influences. Policy is a reflection of the larger dominant society which is the source of acceptable definitions of the "common good" and of the parameters within which solutions may be sought (Guba 1985, Ham and Hill 1984). These influences color both how a policy is designed and put into practice as well as how it is or is not accepted by target actors. The contradictions inherent in our social and economic system may lead to contradictions in the implementation of policy. As a result, many policies do not achieve their stated purpose. For example, in the Little Sioux watershed area, farmers were encouraged by the Soil Conservation Service to implement conservation practices to preserve soil and thereby maintain the long-term viability of the Little Sioux area. At the same time, farmers were encouraged by other USDA officials to maximize their production to increase profits and to "feed the world." Depending on which of the two policies a farmer was trying to implement, the countervailing policy and the social good it represented would be compromised. In this instance, the need and desire for profits outweighed environmental concerns. Thus, farmers plowed land that should not have been cropped and thereby significantly increased soil erosion.

Before concluding this section, a dissenting perspective on the action-centered or bottom-up approach to implementation needs to be discussed. Policy is not merely action for the sake of action. Policy is action for some purpose, generally to correct a social problem and to in some way better society. There is more to policy design and implementation, therefore, than just meeting local interests and desires. The inherent quality or worth of the policy idea is equally important, if not more so (Pressman and Wildavsky 1984:168). People at the grass-roots level are part of a larger social system which imposes standards of
behavior consistent with some fundamental notion of what it means to be a citizen of our society. The policy process must sort out the responsibilities and obligations of citizenship from legitimate local and individual interests and incorporate them into policy design and implementation strategies. At issue is the need to avoid fully accepting descriptive generalizations about local conditions and concerns as prescriptive statements about what policy should be (Hogwood and Gunn 1984:207, Linder and Peters 1987:463).

There is a constant tension between the needs of society and the needs of the locality or the individual (Etzioni 1987). The present study acknowledges this tension but takes the position that by better understanding how policy is implemented at the local level, better policy can be designed and implemented for the whole of society as well as for local groups and individuals.

Often the issue is, as it was with the Little Sioux watershed program, how to preserve the larger good intended by the policy and, at the same time, turn control of the process over to local actors who may be more interested in local concerns and less interested in the common good intended by the policy initiative. Such a situation creates tension between individual and collective interests. Yet if the norm is for local control, such tension is inevitable (Berman 1978:164). When local solutions clearly detract from the common good, however, policy-centered implementation strategies can become an important means to retain the integrity of the policy in the face of local opposition.

The issues of social values and the inherent worth of any policy as a means for advancing some larger good in society are critical issues. Such issues, however, are beyond the scope of this study and hence will not be discussed in any great detail. For the purposes of this study, the inherent worth of the policy creating the Little Sioux Watershed program is assumed. The study will, therefore, focus on the problems of implementing that policy.

Core Assumptions

Social order is an ongoing human production and exists only as a product of human activity (Berger and Luckmann 1966). To successfully implement policy, one must acknowledge this dynamic and understand its operation within the specific domain of the policy. Those charged with the implementation of policy must understand the pattern of forces operative in the policy environment (Argyris et al. 1985:19) and the individual and
collective reality which the forces represent. Thus, the initial assumption of this study is that the implementation of policy is a continuous process of interaction within the vagaries of a changing and changeable social environment (Ham and Hill 1984:108).

The implementation of policy is a process of interaction between a series of actors (Kiviniemi 1986:257). Because these actors can be separated by the cultural and attitudinal definitions of situations, as well as by the meanings, values, symbols, and languages they use, how they perceive and make sense of the world provides important clues to explain their behavior and responses (Kiviniemi 1986:262). How individuals make sense of the world has ramifications at the organizational level as well.

Individuals and groups of actors, via the rules they establish (or absorb) for their own behavior and the roles they occupy in organizations, not only influence the specific decisions of those organizations, but also embed institutional structures with certain values and norms which will result in a distinctive organizational culture and a tendency to promote certain interests rather than others (Barrett and Fudge 1981:28).

The second assumption of this study, therefore, is that it is necessary to understand the target actors' world relative to the policy's objectives. Ultimately, it is their understanding which is the final arbiter on the "truth" of the policy (Winter 1966:59).

Policies generally fail to achieve their intended results (Barrett and Fudge 1981:3, Berman 1978:160). To understand the limitations of policy implementation, we must examine the implementation environment, which includes both process and structural considerations (Kiviniemi 1986:253). The conceptualization of the policy environment has traditionally been from the perspective of the policy provider. However, because policy and actions are shaped by broader social, political, economic, and cultural systems, a new focus that allows greater local input and perspective is needed (Kiviniemi 1986:258). Hence, the final assumption of the study is that the analysis of policy implementation is best made from a dynamic social action perspective which includes the influences of macro-factors (Kiviniemi 1986:252-253).

An action-centered perspective is particularly useful for the present study. The legislation creating the Little Sioux watershed program mandated that local sponsors assume responsibility for the operation and maintenance of the watershed structures. Because the local sponsors are autonomous agencies, the Soil Conservation Service has limited formal power to influence their behavior relative to the maintenance of the structures. Legal sanctions may be used, but SCS is reluctant to use them, preferring instead to rely on
informal persuasion. The need for the present study indicates that this has not been an effective method.

In summary, it is a fluid, indeterminate world in which SCS and the local sponsors interact for the purpose of maintaining and operating the structures. To study this interaction, a model of analysis is needed that accepts a dynamic world as a starting point and which can analyze action at the local level which impedes or supports the effective implementation of the watershed project.
CHAPTER III

METHODOLOGY

This chapter outlines the methodology of the study. The chapter begins with a discussion of the research problem and a rationale for the methodology. Next is a discussion of the research questions which guided the study. Finally, the procedure used to collect and analyze the data to derive a theory of policy implementation is explained.

The Research Project

In October of 1988, the Soil Conservation Service (SCS) contracted with Iowa State University's Department of Sociology and Anthropology to evaluate the maintenance program for the watershed structures built by the Little Sioux Watershed project in the Western Iowa counties of Cherokee, Ida, Monona, Plymouth, and Woodbury. Data for this dissertation were collected as part of the SCS study.

The study, "Social Study of Project Structure Maintenance: Western Iowa Rivers Basin," investigated current understandings and expectations among local sponsors regarding the operation and maintenance of project structures. The purpose of the study was to profile perceptions of local and SCS obligations, review current maintenance activities and procedures, and make recommendation about organizational relationships and responsibilities so that these structures will continue to function as planned (Joint Agreement 1988).

By informal agreement, the study's parameters were expanded to include an analysis of relevant public policy issues and to develop a substantive theory explaining why the policy directives requiring local responsibility for the maintenance of the project structures in the Little Sioux watershed were not implemented as originally agreed. Such a theory is of interest both to SCS officials and to the social science community. The focus of this dissertation is the analysis of these public policy issues.
The Development of Grounded Theory

Public policy confronts a complex, socially constructed reality, which is defined through the interaction of humans as they go about their daily lives (Berger and Luckmann 1966, Guba 1985, Winter 1966, Wittrock and deLeon 1986). The methodological task, therefore, is to acknowledge the complexity of the social phenomena being studied (Strauss 1987:6) and to understand the meanings that shape people's actions and decision-making processes. The methodology must also be capable of integrating these understandings into a theory that explains the phenomena under investigation. Specifically, this study seeks to understand how local actors in the Little Sioux watershed modified imposed policy directives to best serve their needs rather than the dictates of the policy. The findings of the study will then be generalized to explain the process of local implementation in other like situations.

A grounded theory methodology focuses on the empirical level to derive theory from the empirical referents of human activity. Because it is an approach that allows the theory to emerge from the data, it is especially appropriate for policy implementation studies (Fudge and Barrett 1981:250) and hence is an appropriate methodology for the purpose of this study. A grounded theory methodology is therefore used to gather data for the study, to analyze it, and finally to develop a substantive theory explaining the phenomenon under consideration.

The key elements of grounded theory include conceptual categories, the properties of the categories, and the generalized relationships among the categories (Glaser and Strauss 1967: 35).

A category is a unique conceptual unit of the theory that emerges from and is tied to the data. A property of a category is a conceptual element of that category that refines and amplifies its meaning. Derived concepts should be analytic in the sense that they can be generalized to other situations, and they should be sensitizing in that they are meaningful to the potential reader and relate to real world experiences. Categories and their properties are generated through a constant comparative process that systematically examines similarities and differences among the groups which are the focus of the study. The process of comparing similarities and differences among groups also generates generalized relationships among the conceptual categories that emerge from the data. The relationships are refined by the additional collection and analysis of data. If the derived theory was to be empirically
verified at some later time, the generalized relationships would become the hypotheses for testing (Glaser and Strauss 1967: 36-40).

Grounded theory uses a general comparative method to discover theory from data (Glaser and Strauss 1967:1). By constantly comparing many groups, the researcher is able to see their many differences and similarities which "leads him to generate abstract categories and their properties which, since they emerge from the data, will clearly be important to a theory explaining the kind of behavior under observation" (Glaser and Strauss 1967:36).

The comparative method is well suited to the task of generating theory. By focusing on similarities and differences among groups, the method highlights different modes of knowing and acting which must be integrated and theoretically explained. Because this is a developmental process, the comparative method is particularly adept at generating theories of process and change (Conrad 1978:103).

A grounded theory methodology is a flexible approach for gathering and analyzing data. It is not a rigid, standardized approach but may utilize a variety of data collection techniques and data sources to generate a rich comparative data base (Conrad 1978:103, Strauss 1987:7). The constant comparative methodology involves four interdependent stages used to identify, categorize, and compare data incidents. These stages are:

1. comparing incidents applicable to each category,
2. integrating categories and their properties,
3. delimiting the theory, and

Conrad (1978:103) summarizes the process as follows. In the first step of this process, the researcher collects data and codes them into categories of analysis. These categories or concepts (or variables) are abstracted by the researcher on the basis of a constant comparison of data incidents with other data incidents. As concepts emerge through this process of constant comparisons, the researcher begins to analyze the theoretical properties of each concept and moves into the second stage of the process, integrating categories and their properties. Here the researcher compares new data incidents with properties of the concepts that have been abstracted during the comparison of incidents. The third step, delimiting the theory, involves noting differences among data incidents and inconsistencies between data incidents and emerging concepts, thus clarifying the emerging
theory and delimiting the theory to a smaller set of higher level concepts. In the final step of the process the theory is presented in either a discussion format or as a set of propositions.

Development of Research Questions

In using a grounded theory methodology, the researcher is guided by research questions rather than by hypotheses (Glaser and Strauss 1967:45). Research questions for this study were generated from the agreement with the Soil Conservation Service and from literature pertaining to policy implementation. The SCS agreement specified that the following information should be collected:

1. the understanding, knowledge, and perceptions of local obligations for maintenance;
2. the factors contributing to and/or inhibiting sound maintenance of the structures;
3. local perceptions of options to maintain the integrity of the overall project (Joint Agreement 1988).

Implementation literature drew attention to the need to examine linkages among actors and the impact of macro-level social and economic forces.

The research questions developed for this study are:

1. What understanding, knowledge, and perceptions do local actors have of their obligations for the maintenance and operation of the watershed structures?
2. What are the links among the various actors, and how do these linkages support or deter implementation of the stated policy?
3. How do the various actors understand soil conservation, and how does this understanding shape their behavior and their assignment of responsibility for maintenance of the watershed structures?
4. What does private property mean to the various actors, and how does this understanding shape their acceptance and cooperation relative to the maintenance of the watershed structures as well as attendant soil conservation activities?
5. What macro-factors impede or support appropriate maintenance activities?
Following is a rationale for the use of these questions and their importance to the study.

Obligations for maintenance

An initial purpose of the study is to learn respondents' perceptions and understanding of their obligation for the maintenance of the structures. This issue is central to the SCS study. Because different perceptions and understanding of maintenance obligations can lead to different maintenance behaviors, this issue is important from a policy perspective as well. If landowners do not understand that they have maintenance responsibilities, or if they have little or no sense of obligation for maintenance, then lack of action on their part is understandable and provides an entry point for new policy initiatives to inform and educate them about their obligations.

Linkages among actors

Too frequently, studies of implementation fail to examine the linkages among various implementing bodies (Kiviniemi 1986). An examination of this issue is particularly important for the present study because the original maintenance program was established on the assumption that the conservation district, the board of supervisors, and the landowners would cooperatively take responsibility for maintenance of the structures. On another level, it is also important to examine the continuing role of SCS relative to their linkages with local agencies. At issue is the extent to which SCS has allowed the local agencies to take the responsibility for maintenance, or whether by staying involved with maintenance issues and practices, SCS may have starved off genuine local initiatives.

Responsibility for soil conservation

Data around this issue are needed to assess the extent of actors' knowledge about good soil conservation practices and the commitment to actually using them. The assumption is being made that the greater the commitment to soil conservation by landowners, district commissioners, and boards of supervisors, the greater the concern and sense of responsibility for the watershed structures. Information in this area also provides data about feelings and acceptance of government intervention to impose the use of good soil conservation practices. The issue of government intervention examines who is ultimately responsible for maintaining the soil: the individual landowner or the government as
representative of the public interest. How people decide on this issue would influence behavior relative to the care of the watershed structures.

**Private/public issues**

The federal government intervened to build watershed structures on private land with the understanding that their operation and maintenance would be the responsibility of local public and private entities. How people understand the private/public relationship as it relates to responsibility for the structures is important to know. To the extent that the structures retained their publicness, landowners may be less concerned about them, and more willing to let the government maintain them. A related question is the issue of government intervention to regulate private behavior relative to land-use practices (see the discussion of responsibility for soil conservation above). How people understand and accept outside intervention can thwart or enhance the intervention's intended effects. People can organize in opposition, withdraw in apathy, passively conform, or actively cooperate to the betterment of the common good (Kiviniemi 1986:260).

**Macro-level influences**

Western Iowa is not an isolated part of the world. Landowners who live and work there are influenced by macro-level economic systems and government policies which reinforce certain behaviors and curtail others. Data documenting these influences are particularly important for this study because the past 40 years have been a time of profound change in rural society. Understanding how these influences and changes impacted the social and economic structure of the Little Sioux area and, in turn, impacted maintenance issues is important in assessing local actors' commitment to carrying out maintenance activities.

**Collection of Data**

As is typical of applied work, the issues which are important to the contracting agency define the parameters and methods of the study (Rossi et al. 1978, Gouldner 1957). The kind and amount of data and the method of collection for this study were dictated by the terms of the agreement with the Soil Conservation Service. The agreement specified that data were to be obtained through interviews with past and present relevant decision makers,
public officials, and other individuals knowledgeable about the project. The agreement further specified that interviews were to be primarily open-ended questions with a limited amount of closed-ended structured questions (Joint Agreement 1988).

A total of 65 individuals were interviewed for the study. Table 1 indicates the number, position, and location of the respondents.

Table 1. Number of individuals interviewed by position and county

<table>
<thead>
<tr>
<th></th>
<th>Ida</th>
<th>Monona</th>
<th>Woodbury</th>
<th>SCS Area</th>
<th>SCS State</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCS District</td>
<td></td>
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<td></td>
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<tr>
<td>Conservationist</td>
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<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>District Commissioner</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Board of Supervisors</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Inspector</td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Landowner</td>
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<td>10</td>
<td>8</td>
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<td></td>
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<tr>
<td>SCS Area Personnel</td>
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<tr>
<td>SCS State Personnel</td>
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<td>4</td>
<td>4</td>
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<tr>
<td><strong>Total</strong></td>
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<td>20</td>
<td>17</td>
<td>5</td>
<td>4</td>
<td>65</td>
</tr>
</tbody>
</table>

Additional data for the study were gathered from the Iowa State University Archives and other secondary sources of information about the Soil Conservation Service and the Little Sioux Watershed program.

A prepared questionnaire was used to give structure to the interview process. Two questionnaires (see Appendix) were constructed. One was used with organization personnel, and a second was administered to landowners. Organization personnel included all SCS-related individuals, members of the boards of supervisors, and the district
commissioners. Before constructing the questionnaires, we traveled to the area to meet with the District Conservationist and other SCS personnel in each of the five counties. We also met with several district commissioners and visited several watershed structures. Our purpose was to learn about watershed structures and about the watershed program and to understand issues from a local perspective. The learnings and insights gained from these exploratory interviews were incorporated into the final version of the questionnaires.

Once developed, the survey instruments were field-tested and further refined. The final forms were approved by the Soil Conservation Service.

According to the guidelines of the comparative method, comparison groups should be selected that are theoretically relevant (Conrad 1978:103). All five counties met this criteria. The Little Sioux Watershed program was present in each county, and, according to SCS, each county was experiencing problems of failing to adequately implement the local maintenance requirement. As a practical matter, each interviewer individually conducted interviews in two counties; joint interviews were conducted in the fifth county. I selected Ida and Monona Counties to conduct my interviews. We conducted joint interviews in Woodbury County. I also conducted interviews with SCS area and state level personnel. Because I am most familiar with these data as well as the nuances of the personal interviews, I will use only the data from these three counties and from the SCS personnel for the dissertation.

Names of SCS personnel to interview were provided by the study's state level coordinator. Names of local individuals to interview, including landowners, district commissioners, and boards of supervisors, were suggested by the SCS District Conservationist in each county. He also recommended who among these groups might have the most information to provide and who might be most helpful. Based on these recommendations, I made the final selections as to who to interview and scheduled the interviews. Interviews were usually conducted at the individual's residence or place of work. The amount of time for each interview varied from as little as an hour to as much as four-and-one-half hours. The average time was approximately two hours.

The questionnaires were used as a guide. Many follow-up and clarifying questions were asked to help me better understand what the individual was trying to convey. In some instances, when the individual had a breadth of relevant experience and information not captured by the questionnaire, the formal format was abandoned and the interview was restructured to follow the leads provided by the interviewee. This interviewing method is
consistent with the comparative method, as long as the data that are collected and analyzed are in the service of the grounded theory (Conrad 1978:103).

Amplifying notes were taken during each interview along with recording the answers to specific questions. At the end of each day, the questionnaires and notes were reviewed, comments were edited and clarified, and a summary of the major learnings for that day was completed.

Analysis of the Data

The principle of theoretical sampling and the constant comparison method, as outlined by Glaser and Strauss (1967), were modified somewhat for the purpose of this study. "Theoretical sampling is the process of collecting data for comparative analysis" (Conrad 1978:102). In an ideal sense, theoretical sampling dictates that, once the initial collection of data is completed, the additional collection of data is controlled by the emerging data, with the collection process continuing until no additional data are found (Glaser and Strauss 1967:61). Because the agreement with the Soil Conservation Service limited the time and resources available for collecting data, it was not possible to strictly follow this process. Conrad (1978:104), however, suggests that the theoretical sampling of selected comparison groups is consistent with the criteria established for the constant comparison method if the selection process is based on the theoretical foundation of the research questions and preliminary criteria relating to categories.

In developing a grounded theory of academic change, Conrad (1978) identified four comparison groups which fit his pre-established criteria. He then selected one group to create a theoretical framework which guided his analysis of the other comparison groups using the constant comparison method. Conrad's procedure is used for this dissertation to collect and analyze the data and to develop the grounded theory.

Data from Woodbury County were used to develop an initial theoretical framework that was then used as the comparative basis to analyze data from Ida and Monona Counties. Woodbury County was selected as the initial county because its watershed program shares more similarities than differences with the programs in the other two counties.

Data were analyzed in a two-step process. First, the questionnaires, field notes, and secondary data sources for each county were analyzed in terms of the research questions. The research questions provided an initial entry into the data and a method of organization to
focus on the applied and theoretical issues of the study. The prime objective of this analysis was to gain an understanding of how the watershed program developed and functioned in each county. A secondary objective was to begin the process of identifying categories that would have relevance for deriving a theory of implementation. Results of the initial analysis are presented in Chapter 5.

In the second step, the comparative method was applied. The data from Woodbury county were re-analyzed, using the initial emergent categories as a starting point. Categories were identified along with their central properties and the conditions under which they were maximized or minimized, their consequences, and their relation to each other. A tentative theory was then developed, which was next applied to the data for Ida and Monona counties to derive a more complete theory. A description of this analysis and an explication of the theory are presented in Chapter 6.
CHAPTER IV
BACKGROUND

The chapter provides general background information about the Little Sioux area and the Little Sioux Watershed program. The chapter begins with a description of the geography and history of the area. The problems of soil erosion and flooding are then discussed, followed by a description of the watershed program designed to solve these problems and of the key actors who were to implement it. The chapter concludes with a discussion of SCS's relationship to the watershed program and the major land-use changes which compromised the program's effectiveness.

Geography and History

The Little Sioux River rises in southwestern Minnesota and flows in a southwesterly direction to enter the Missouri River about halfway between Sioux City and Council Bluffs, Iowa. The entire watershed contains 4,502 square miles, more than 93 percent of which lies within the State of Iowa. Figure 1 shows the boundaries of the watershed and the portion eligible for program funding. Wind-blown material, or loess, covers the lower part of the watershed, producing soils which are exceptionally productive as well as exceptionally vulnerable to erosion. (There are only two areas like this in the world; one is the Little Sioux area, the other is in Northern China.)

Prior to its settlement by the white man, most of the Little Sioux watershed was covered with native prairie grasses. Early historians called the picturesque Little Sioux River Valley a promised land. The fertile area, with its gently rolling prairie soils and level lands at the lower reaches and steep slopes in between, abounded in food for the Sioux Indians and early settlers (Little Sioux River Watershed 1959:5).

The study area is located in the lower two-thirds of the valley. At the northern end of this area, the topography is gently sloping to rolling and the loess soils are three to ten feet deep. The topography at the lower end of the area is rolling to very steep with loess soils found in depths of 25 to 50 feet and occasionally down to 100 feet. Slopes in this area commonly range from 15 to 25% and sometimes over 50%. The study area is bounded on
LEGEND

- AREA IN WHICH NO PROGRAM IS RECOMMENDED.
  946,560 ACRES.
- TOTAL WATERSHED AREA 2,881,280 ACRES.

Figure 1. Little Sioux Watershed
the west by the Missouri flood plain. Until enactment of the flood control program, the
flood plain experienced regular and severe flooding (Little Sioux River Watershed 1959:5).

White settlement and tillage of the land began in the middle of the 19th century.
Early farmers produced grain and some livestock for the commercial market. By the late
1930s, average farm size was about 200 acres with most falling between 80 and 400 acres.
By this time, two-thirds of the area farms were selling grain. The income from grain sales,
however, was only one-sixth of total farm income. Livestock and hog farming
predominated in the area and produced most of the income (House Document No. 268, 78th
Congress 1943:6).

Because the loess soils of the area are comparatively low in clay and organic
materials, they are highly vulnerable to erosion. Soil erosion increased significantly during
the First World War as the demands for increased production motivated farmers to cultivate
the steep land. As a result, annual soil losses in many areas were frequently as high as 60-
100 tons per acre (Lamp 1958:1). The fertile soil of the Little Sioux watershed contained
the seeds of its own destruction. The fertility of the area was an invitation to the careless, the
ignorant, and the greedy to mine the land for early profits (Little Sioux River Watershed
1959:6).

Tillage practices exacerbated the problem. The norm was to plant up and down hills
with no consideration given to the contour of the land. One long-time area farmer and
resident said that the few who adopted contour planting were ridiculed by neighbors and
agriculture agents. The common response was that anyone who farmed that way should be
sent to the Mental Health Institute at Cherokee. One farmer who used contour methods was
told by an agriculture agent that it was all right to plant this way for awhile but that eventually
it would drive him crazy.

Available technology also prevented widespread adoption of contour methods.
Cultivating with horses was too slow to throw sufficient dirt to cover all the weeds in a row.
Consequently, two passes at right angles to one another had to be made across each field. If
a field was planted on a contour, this method of cultivation was very difficult if not
impossible. Consequently, few farmers used contour planting. Cultivating by tractor could
throw more dirt and hence only one pass was necessary. Thus it was not until the mid-
1940s, when the use of tractors was widespread, that greater use was made of contour
methods. By then, however, much of the damage had already been done.
By the mid-1940s, nearly a century of agricultural development had taken its toll. Huge gullies, 20 to 50 feet deep and 100 to 200 feet wide, were common. Active gully heads eventually destroyed lanes, roads, bridges, buildings, and rich farm land. Gully formation in the uplands moved tons of dirt downward through the ditches, creeks, and tributaries of the Little Sioux to eventually be deposited on the flood plain along the Missouri River completely inundating the drainage ditches which had been built to drain the bottomland for agriculture. Beginning in the early 1920s, draglines worked throughout the year to keep the drainage ditches cleared. One drainage district reported spending an average of $77,000 per year through the 1940s to clean and improve drainage ditches. The best of Siouxland soils were being deposited on the levees which criss-crossed the flood plain (Little Sioux River Watershed 1959:6).

Hundreds of acres of rich crop lands were destroyed annually by the advancement and widening of these gullies. For example, according to aerial photos one gully head in the main stem of a 6,000 acre watershed advanced approximately 2 miles in an 18-year period (1938-1955). The 1937 aerial photo indicated that a channel of no more than 4-6 feet in depth existed in this stretch of watercourse at that time. By the mid-1950s, this 2-mile watercourse was now 25-48 feet deep and 75-125 feet wide. Within this 18-year period, approximately 24 acres of the most highly productive land in the watershed was destroyed. The county road bridge, centrally located in this 2-mile stretch, had to be replaced 4 times between 1944 and 1955 (Lamp 1958:2).

The average annual maintenance cost for a large number of road crossing sites was over $1000. In many instances, bridges were lengthened; and in other instances, entirely new bridges were installed because of increased gully depths. Maintenance costs were relatively high for railroads and other public utilities in the watershed as well (Lamp 1958:2).

By the early 1930s, damage from flood run-off and from sediment deposits was considerable. Such damage included:

1. land destruction; voiding by gully development
2. land depreciation due to lateral development of gullies
3. sheet erosion damage to agricultural lands
4. erosion damage to public roads, railroads, public utilities, etc.
5. damage to farm crossings, fences, and buildings
6. livestock losses

7. floodwater and sediment damage:
   a. along all upland watercourses
   b. to drainage ditches and lands in the Missouri River flood plain
   c. to municipalities
   d. to public roads, railroads, public utilities, etc.
   e. to farm crossings, fences and buildings (Lamp 1958:1).

The land destruction caused by regular flooding removed large quantities of fertile topsoil from the upland farms, bringing about the gradual deterioration of an irreplaceable natural resource. The worth of all damages totaled more than one-half million dollars each year (House Document No. 268, 78th Congress 1943:1).

A flood in June of 1951 ruined hundreds of thousands of acres as well as drowning a number of hogs and cattle (Soldier Sentinel 1951). A heavy rain in June of 1954 ruined thousands of crop acres and resulted in damage of several millions of dollars. In Monona county, the Maple River covered the valley with water from Turin to Mapleton, a distance of approximately 20 miles (Soldier Sentinel 1954).

By the late 1940s and early 1950s, there was a concerted effort to demonstrate the benefits of good soil management. At a meeting in early 1951, slides showing the damage from the heavy rains of the previous spring were used to demonstrate the benefits of good soil management. One set of slides showed that in unprotected areas, 2 million tons of soil were lost in approximately a 7-hour period. In one field, 340 tons per acre were lost on a 15% slope. In contrast, other slides were shown of farms which used good conservation practices. These farms experienced considerably less soil loss, with some experiencing none (Ute Independent 1951).

The Key Actors

Two groups of actors, the district commissioners representing individual soil conservation districts, and the Soil Conservation Service (SCS), were important in the effort to educate people about soil conservation and to promote its use among farmers. From the beginning, the conservation districts and SCS have played key roles in implementing the Little Sioux Watershed program.

The Soil Conservation Service is the technical agency of the U.S. Department of Agriculture that helps landowners and operators apply soil conservation practices to land.
SCS supplies farmers with on-site technical assistance and information for the selection, installation, and maintenance of soil and water conservation practices. In addition, SCS develops soil surveys, monitors soil and water resources, and organizes small watersheds and flood prevention programs (USDA-SCS N.D.). The Soil Conservation Service uses interpersonal communication and public education to be a strong advocate for soil conservation (Hoban 1986:18).

In Iowa, SCS programs are administered at the county level by a district conservationist who supervises one or more state and/or federal technicians. SCS also provides office space for the local soil conservation district (Hoban 1986:18).

The soil conservation district was created by an initiative of the federal government which needed local agencies to accept federal conservation dollars and to legitimize federal efforts to promote soil conservation at the local level. "District functions, powers, and organizational arrangements were outlined by the Department of Agriculture in a model act which was generally followed in state laws" (Parks 1952:11). Legally the district is a local subdivision of the state. As such, in its legal structure and authority it is completely independent of the federal government (Parks 1952:11). Functionally, however, because the district has no taxing authority, it is dependent on the resources and technical assistance of the federal government to implement programs (Parks 1952:14,16). The result is a hybrid organization. The district is at one and the same time both independent and dependent. The district has the legal authority and power to carry on its own conservation program independent of the Soil Conservation Service. However, it has neither the resources nor technical skills needed to carry out these programs. The district was to be a governmental apparatus to bring together in an ordered, common effort the competencies, energies, and resources of public agencies functioning in soil conservation (Parks 1952:16).

In 1939, the Iowa 49th General Assembly passed the Soil Conservation Districts Law to make it possible for Iowa farmers to organize, establish and operate local soil conservation districts (Soldier Sentinel 1952). Each district is governed by five locally elected soil conservation commissioners who serve without pay. The commissioners' prime responsibility is to set local soil conservation policy. The formal duties of the commissioners are to:

1. adopt a procedure for identification, inventory, and analysis of resource problems, including the orderly development of conservation plans for farms, communities, and watershed;
The soil conservation districts were designated as the local sponsors of the Little Sioux Watershed program (Onawa Sentinel 1952). The districts were the local agency in each county of the watershed program that linked the federal government, as represented by the Soil Conservation Service, with the farmer. The districts' responsibilities were to make the arrangements for carrying out the watershed program, including executing legal arrangements with local farmers and others to provide rights and permits to install and maintain the needed watershed structures (Lamp 1958:3).

The Little Sioux Watershed Program

Establishment of the program

The Little Sioux Watershed program was formally established by the 78th Congress in 1944 with Public Law 534. In January of 1946, after Congress had appropriated funds to the Department of Agriculture to execute the program, the State Soil Conservation Committee of Iowa met in Sioux City, Iowa with district commissioners, farmers, and other interested citizens to review the authorized program and to establish an implementing procedure.

At this meeting, the decision was made to have the soil conservation districts be the local sponsor for the watershed program as well as be responsible for securing all needed local cooperation (Summary of meeting 1946). The State Soil Conservation Committee recommended that a Works Committee be organized to assume certain general responsibilities and to provide overall guidance in the execution of the program.

Late in 1946, a permanent organization, known as the Little Sioux Works Committee, was established by formal action of the 12 soil conservation districts which were concerned with the flood prevention program. Each district appointed one of its members as a permanent representative to the committee, and each district resolved to cooperate with the committee as it worked to establish uniform procedures for applying the Little Sioux Watershed program and to accept its decisions with respect to the priorities for the work
(Summary of meeting 1946). The initial duties of the Little Sioux Works Committee were to:

1. represent the people of the Little Sioux watershed in dealing with federal agencies and make recommendations to federal agencies in regard to the Flood Control program

2. make recommendations to the soil conservation districts within the Little Sioux watershed as to the procedures to follow in carrying out the Flood Control program

3. set up priorities of work in cooperation with the soil conservation districts and federal agencies (Summary of meeting 1946).

The content of the program

The goals of the watershed program were to apply soil conservation practices to farm land to increase infiltration of rainfall, to reduce further gully development, and to reduce the amount of silt and sediment which is carried from tributaries to larger streams.

The program to control flooding and related damages had two phases:

1. the treatment of farm lands in the loess-covered portion of the watershed to reduce flood run-off at its source and minimize erosion; and

2. the building of structures to control major gullies; that is, gullies so large that they cannot be stopped by individual action (House Document No. 268, 78th Congress 1943:1).

The land treatment measures were designed to increase the proportion of the watershed protected by terraces and by grass and other close-growing covers. Farmers were also assisted to adopt improved tillage and planting practices. In some places, major gullies were controlled by building earth dams to hold the water and let it drain slowly. In other places, flumes were installed to carry the floodwaters safely to the bottoms of the gullies. Many of the earth dams replaced bridges, which were being maintained at great expense. Sketches of the structures most commonly build by SCS in the Little Sioux watershed are presented in Figures 2-7. These structures were designed to have a useful life of 50 years. Thus, many of the earliest built structures are nearing the end of their planned design life.
Figure 2. Drop-inlet with chute spillway
Figure 3. Chute spillway
Figure 4. Monolithic drop-inlet on roadway and conservation pool
Figure 5. Metal pipe with hooded inlet and trash guard
Figure 6. Metal pipe with hooded inlet and slotted flume outlet
Figure 7. Culvert box-inlet
The requirement for local input and responsibility

The watershed program was conditional on local people contributing a portion of the construction costs of the earth dams and on a local agency or agencies agreeing to "inspect, operate, repair, replace, and otherwise maintain the major gully control works in perpetuity" (House Document No. 268, 78th Congress 1943:2). The conservation districts assumed this responsibility with the understanding that the county boards of supervisors would share in it.

Three groups of local actors thus became key to the success of the Little Sioux Watershed program; the landowner, the soil conservation districts, and the boards of supervisors. A fourth actor, the District Soil Conservation Service office, played a coordinating role and was ultimately the driving force behind the program.

Once the construction work was completed and the watershed structures were satisfactorily installed in an organized watershed, the federal government no longer had responsibility for them (Lamp 1958:6). At this point, the policy of the watershed program required the conservation district, representing the local community, to assume responsibility for the operation and maintenance of the structures that were a part of the organized watershed. The acceptance of responsibility for the structures was documented by letter from the conservation district to the SCS district office. In the letter, the district stated that it accepted responsibility for the completed flood control work in the watershed and that it would "follow through with establishing maintenance responsibilities with [the board of supervisors] and the farmer cooperators" (Eberly 1952).

Maintenance responsibilities and activities

Each conservation district agreed to maintain the improvements installed within its boundaries. A summary of SCS's understanding of this agreement follows.

A formal inspection is to be made of each improvement by the district and the SCS. There is to be special inspection of all improvements shortly after periods of excessive runoff. The district has full responsibility for the operation and maintenance of all improvements installed under the program. Except for the major structures, maintenance is the responsibility of farmers and others who hold title to areas on which improvements are installed. Major structures built on farm lands are to be maintained by the soil conservation district, unless other arrangements are made. All other major structures are to be maintained by titleholders to the areas on which the improvements are installed (Lamp 1958:5-6).
The district's formal arrangements for the maintenance of the structures as recommended by the Little Sioux Works Committee is described in the Amendment to District Program and Work Plan (1954:1-2). The section reads as follows:

Agreements with 'non-farm land' cooperators will provide that the maintenance of the improvements on those lands will be the responsibility of those respective cooperators.

Agreements with 'farm land' cooperators will provide that maintenance of the improvements on farm land will be accomplished by:

1. The county board of supervisors providing funds and doing repair work on structures in accordance with state legislation, or
2. The district doing the repair work on structures with funds provided by the respective watershed group of farm land- owners, and
3. The cooperators doing the repair work and maintenance on all improvements other than structures, unless otherwise arranged.

**Funding of maintenance**

By statute, the federal government could incur no costs for the operation and maintenance of the watershed program (House Document No. 268, 78th Congress 1943:2). A funding mechanism, therefore, had to be created to pay for the expense of operating and maintaining each watershed.

Funding the initial construction and the continuing maintenance costs of the structures was to be a cooperative arrangement. The Amendment to District Program and Work Plan (1954:3) describes the arrangements. Owners of farm lands were to contribute to the district a cash amount equal to 2% of the estimated construction costs of installing structures on farm lands within the watershed area. To pay for maintenance costs in those counties where boards of supervisors refused to provide funds or to assume maintenance responsibilities, landowners were required to make 15 annual payments to the district equal to 1/4 of the initial payment. Landowners also had responsibility for maintaining all farm land improvements, such as waterways, channels, diversion ditches and dikes, and terraces. Landowners also had responsibility for maintaining vegetative cover and for controlling the weeds and trees around the structures.
Changes in the program

From the beginning of the watershed program, members of the public questioned the wisdom of spending so much money to prevent soil erosion. Costs for the early watersheds ranged from $10 to $225 per acre (Lamp 1949). Costs at the high end seemed excessive, particularly when much of the land was worth less than $75 per acre. SCS and members of the public who supported the watershed program believed much of the public did not understand the program or the public stake in the project (Lamp 1948).

SCS did take steps to reduce the per-acre cost of the watershed structures. It streamlined construction procedures and standardized designs (Williams 1952). Also, it gave a higher priority to land treatment measures. Treatment standards were increased to require that at least 75% of the "sediment source areas which, if uncontrolled, would require a material increase in the cost of construction, operation, or maintenance" (Moon 1972) be adequately protected by terraces and grass waterways before federal funds could be spent for the construction of watershed structures. This requirement reduced the number of structures which had to be built as well as made it possible to build less expensive structures.

Another effect of this change was to increase the landowner's costs to participate in the program. The Little Sioux project did not provide funds for the land treatment phase of the program. These cost were the responsibility of the individual landowner who was not always willing to make the expenditure, especially when he/she would derive little or no direct benefit from the structure. In time, when cost-sharing funds for terracing became available through other federal and state conservation programs, farmers became more cooperative in completing the required land treatment.

SCS and the Little Sioux Watershed Project

SCS's initial involvement with the watershed project set patterns of interaction and expectations that are still in effect today. Many landowners were led to believe they would have little or no responsibility for the structures, and SCS did assume responsibility for some maintenance tasks.

Many of those interviewed for the study, report that SCS applied excessive pressure to overcome landowners' reluctance to join an organized watershed and/or to allow a structure to be built on their land. The landowners were told that SCS would take care of maintenance and any problems that might occur. The local landowners were led to believe
that they would have no continuing responsibility for the structures. The expectation was established early in the program that the government would build and maintain the structures. As one official said:

The general impression was given that the government would take care of everything and the landowner would have little or no responsibility for the structures. The pattern was established early and pretty much continues today. The structures are perceived to be the government’s, and it is their responsibility to take care of them.

The construction process affected the durability of the watershed structures. As a result, SCS has been forced to assume some maintenance responsibilities for the structures up to the present. Building the structures, particularly in the early days of the program, was a "learn-as-you-go" process. The design and construction problems were not standard, and with the goal being to build as many structures as possible, engineers made mistakes. Many structures, in retrospect, were not built as well as they should have been. When problems began to develop, SCS took responsibility for those structures which needed repair because of inadequate construction methods. SCS justified the repairs because of a design deficiency in the original construction.

Initially, repairs that were a result of design deficiencies and those that were a result of inadequate maintenance were hard to distinguish. To an outsider, the distinction seemed to be influenced more by political and financial considerations than by any technical criteria. The issue became more complex as new technologies and construction methods made it possible to repair structures to a higher standard than when originally built. If the knowledge and technology standards in place at the time of construction were used, SCS would have no responsibility for the repair. If, however, current state of the art criteria were used to make the determination, SCS could justify making the repairs. SCS's decision was to use state of the art criteria to determine if there was a design deficiency. This decision has extended SCS's responsibility for maintaining the integrity of the structures and has compromised local incentive to assume full maintenance responsibility for the structures.

Since design deficiencies are based on contemporary design knowledge and technology, the response by local sponsors to a need for major repairs is to have the problem defined as a design deficiency and hence not a local responsibility. Though seemingly standardized, design deficiency decisions become a matter of negotiation, particularly when there is uncertainty about the cause of the problem or when the public interest is particularly
important. The process conveys a sense of fluidity which is not present in the written agreements.

The length of the negotiation process and the sometimes perceived inconsistency of the decisions, particularly when they go against local interests, tend to undermine the credibility of the SCS. Many still remember the "good old days" when SCS fixed structures that needed fixing. These people can see no reason why SCS cannot continue to do so. The perception is ingrained that SCS took care of maintenance in the past and so should continue to do so today.

The availability of funds is another key factor in determining what maintenance task SCS is willing to assume. For example, in 1985 SCS used money from a federal jobs bill to hire summer employees to complete needed maintenance work. At other times it has refused to complete repairs because of lack of funds. When the task is small and/or funds are ample, neither SCS nor the district object to completing the work. When repairs call for a large expenditure of funds, however, each agency is less willing to assume responsibility. Because the written agreements state that SCS is not responsible for maintenance, it is in a stronger position to affect decisions favorable to its interests. A perception exists that the availability of funds is the primary determinant of SCS willingness to take responsibility for repairs.

The Little Sioux Watershed program is unique. The proliferation of many small structures built in highly fragile soils has made it a very expensive program. In addition, because each watershed area encompasses relatively few acres, it is hard to generate financial support for the operation and maintenance of structures from local funding only. Funds are available for basic maintenance and repairs, but there is an insufficient funding base to hire staff and to provide the technical support that is needed for a full scale maintenance program. Outside financial and technical support is needed to maintain the viability of the program. The uniqueness of the area and the watershed project has intertwined SCS and the local sponsors in ways which were not envisioned by the project's designers or the original legislation. The inability of the local sponsors to establish an independent funding base has forced their continued dependence on SCS, which in turn has precluded SCS from being able to remove itself from the program as the original legislation intended. At the same time, the ability of the conservation districts to develop their own autonomy and expertise relative to the operation and maintenance of the watershed structures has been compromised.
The soil conservation districts were created to work cooperatively with SCS to promote and implement soil conservation programs. The Little Sioux Watershed program, however, emphasized local control for the operation and maintenance of the project structures. Despite the emphasis on local control, the Soil Conservation Service, keeping faith with its original mission, has remained heavily involved in the Little Sioux Watershed program, and it has strongly influenced the direction of the program. The consequence has been to blur even further the lines of control and authority between the conservation district and SCS.

Land-use Changes

The tension between private interest and public good is inherent in the watershed program. In testimony before the U.S. Congress justifying the Little Sioux Watershed program, the Secretary of Agriculture succinctly articulated this tension:

The farmers are the custodians of the basic resources upon which the destiny of this Nation ultimately depends. The public, however, has a paramount interest in conservation and in good land management. Conservation is an inseparable part of the business of farming. The economic risk to the farmer is, however, too great. Thus the federal government should provide economic assistance through loans, credit, or grants to assist the farmer in implementing sound conservation practices (Brannan 1950:13-14).

Private ownership of land and the right of the owner to use it as he/she best sees fit has always been a fundamental tenet of our society. The above defense of the program concluded by saying that the government in providing its assistance would rely primarily on the cooperation of the farmers. It is "they who would have the choice of taking part as they see fit, as their own conditions require, and as the program itself merits cooperation" (Brannan 1950:14). By offering alternatives and fixes to the misuse of land in the Little Sioux area, the watershed program questioned this article of faith but never seriously challenged it.

Much of the land in the Little Sioux area probably should not have been settled or at least commercially farmed. The land is too vulnerable to erosion and society did not need this land to produce food. Nonetheless, private interests determined that individuals would settle the area and economic needs dictated that they would farm the land for profit. Through the early years of settlement, ignorance and the need for profits drove many farmers to
exploit and destroy much of the land. A series of government studies from 1939 through 1941 served as the basis to design a remedial program, which became the Little Sioux Watershed project (Lamp 1949). One faction of the government was now in a position to heavily influence private land-use decisions. For a time it had a strong influence as a large number of structures were completed and many of the most severe erosion problems were overcome.

Macro-economic forces, however, intervened to upset the balance of private interest and public good in favor of private economic gain. A decrease in cattle prices and government support programs motivated farmers to convert to row crops. Because the watershed structures had been designed for land use patterns which included little row cropping, the structures filled with silt faster than planned. The structures were in place and could not be changed. Only people's values and practices could change to prevent the deterioration of the watersheds. There was no incentive, however, at the individual level to change. The fundamental societal values of individualism and private ownership and use of land continued to prevail.

Against this background, the Little Sioux Watershed program continued to build structures, many times with little attention to ensuring that maintenance issue were adequately addressed. Some structures were completed without adequate land treatment because SCS could not afford the time to obtain landowners' agreements to participate in the program and to complete the required land treatment. Also, it was possible for an organized watershed to meet the 75% land treatment criteria and yet not have all structures in the watershed actually protected by land treatment measures. If a structure was below row cropped land with no treatment, it would rapidly fill with silt.

Passage of the Food Security Act (FSA) in 1985 significantly changed the private/public balance in favor of the public interest. The FSA now acts like a governor on an engine. The basic drive to overuse the land to maximize profits is still there, but current farm income is closely tied to government support payments. Thus, farmers are forced to conform to FSA rules to maximize their income. As a result, pressure on the structures has been relieved, at least for the immediate future.
CHAPTER V

CASE STUDIES

Data for Ida, Monona, and Woodbury Counties are presented to describe for each county:

1. the development of the Little Sioux Watershed program,
2. the funding and implementation of maintenance activities, and
3. the responses local actors made to the research questions which guide this study.

Key actors for the case studies are the county board of supervisors, the district conservation commissioners, and the landowners/farmers. Each case study provides a brief introduction to the county's watershed program and then uses the research questions which guide the study (see Chapter 3) as a framework to discuss local actors' experiences and impressions. The research questions are:

1. What understanding, knowledge, and perceptions do local actors have of their obligations for the maintenance and operation of the watershed structures?

2. What are the links among the various actors, and how do these linkages support or deter implementation of the stated policy?

3. How do the various actors understand soil conservation, and how does this understanding shape their behavior and their assignment of responsibility for maintenance of the watershed structures?

4. What does private property mean to the various actors, and how does this understanding shape their acceptance and cooperation relative to the maintenance of the watershed structures as well as attendant soil conservation activities?

5. What macro-factors impede or support appropriate maintenance activities?

Table 2 indicates what questions in the survey instrument were used most often to answer the research questions.

This study assumes that reality is a socially constructed phenomenon derived through negotiation among relevant actors (Berger and Luckmann 1966). For this reason, a range of
Table 2. Cross-reference of research questions with survey instrument questions

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Survey of Conservation Organizations</th>
<th>Survey of Local Landowners</th>
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<tr>
<td>1</td>
<td>5, 6, 7</td>
<td>22, 23, 30, 32, 34, 35</td>
</tr>
<tr>
<td>2</td>
<td>28, 35</td>
<td>15, 28, 51</td>
</tr>
<tr>
<td>3</td>
<td>53, 54, 55</td>
<td>64, 65, 66</td>
</tr>
<tr>
<td>4</td>
<td>48, 59, 60, 61, 62</td>
<td>69, 70, 71, 72, 73</td>
</tr>
<tr>
<td>5</td>
<td>56, 57</td>
<td>67, 68</td>
</tr>
</tbody>
</table>

perspectives is offered in an attempt to capture the variety of reality experiences which make up the watershed program within each county. Reality ultimately encompasses the full spectrum of these experiences and impressions.

The material is primarily descriptive and provides the basis for the theoretical analysis and derivation of the grounded theory. The descriptive material is supplemented by tables that summarize district commissioners' and landowners' responses to the survey questions. Tables of data are not presented for boards of supervisors because the number interviewed was small, and in two counties, they were partially interviewed as a group. Their input is summarized as part of the narrative.

A summary section for each county discusses similarities and differences across the three groups of local actors. The chapter concludes with an integration section that summarizes common themes and differences across the three counties. The counties are presented in alphabetical order.

Common Elements

Several trends which have had a significant impact on the watershed program are common across all three counties. The trends include a decline in farm numbers and an increase in average farm size, an increase in the number of acres planted to corn and
soybeans, and a decline in the amount of land in woods and pasture. Tables 3 and 4 summarize these trends.

Table 3. Changes in the number of farms, farm size, acres of corn and soybeans grown, and the number of cattle and hogs for Ida, Monona, and Woodbury Counties 1940 and 1982 (Census of Agriculture 1940 and 1982)

<table>
<thead>
<tr>
<th></th>
<th>Ida</th>
<th>Monona</th>
<th>Woodbury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>farms</td>
<td>1,389</td>
<td>2,091</td>
<td>3,192</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>farm size</td>
<td>192</td>
<td>203</td>
<td>164</td>
</tr>
<tr>
<td>(acres)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acres of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>corn</td>
<td>90,775</td>
<td>139,936</td>
<td>191,047</td>
</tr>
<tr>
<td>Acres of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>soybeans</td>
<td>3,067</td>
<td>1,216</td>
<td>1,644</td>
</tr>
<tr>
<td>Number of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cattle</td>
<td>33,832</td>
<td>31,690</td>
<td>56,952</td>
</tr>
<tr>
<td>Number of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hogs</td>
<td>43,864</td>
<td>41,415</td>
<td>73,379</td>
</tr>
</tbody>
</table>

Larger farm units usually made it necessary to cultivate more land to make the farms economically viable. With more land under cultivation and a decrease in the number of acres in woods and pasture, the potential for soil erosion increased significantly. The increased cropping of soybeans also contributed to increased soil erosion. Because soybeans loosen the soil, they make it more vulnerable to the action of wind and water. More cropped acres, more soybeans, and less grassland increased the amount of runoff and siltation, which created additional pressure on the watershed structures built by the Little Sioux project, significantly decreasing their useful life.
Table 4. Changes in the number of acres of pasture and woodland for Ida, Monona, and Woodbury Counties 1945 and 1982 (Census of Agriculture 1945 and 1982)

<table>
<thead>
<tr>
<th></th>
<th>Ida</th>
<th>Monona</th>
<th>Woodbury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres of pasture</td>
<td>53,771</td>
<td>31,835</td>
<td>94,473</td>
</tr>
<tr>
<td>Acres of woodland</td>
<td>624</td>
<td>461</td>
<td>16,587</td>
</tr>
</tbody>
</table>

Ida County

The construction of project structures in the Little Sioux Watershed program began in 1948. The majority of the structures in Ida County, however, were not built until the 1970s. As a result, better materials and technology were used for construction, and the program's regulations and operations were more standardized. As a consequence, there have been fewer maintenance problems than in other counties. Also, of the approximately 100 structures which have been built in the county, about 40% are road structures and are thus maintained by the county. Maintenance for the balance of the structures is the responsibility of the district commissioners and of the Soil Conservation Service. SCS provided cost-sharing funds and technical assistance to construct all of the structures.

When the watershed program began in Ida County, farmers were unaware of the conservation benefits that could be gained from participating in the program. Consequently, it was difficult to convince farmers to join an organized watershed. Today farmers are more interested in conservation and watershed programs, but there is no money for the construction of dams and other flood control devices. No new structures have been built in Ida County for several years.

The county board of supervisors was initially reluctant to support maintenance activities (Lamp 1948). As a result, a maintenance fund was created from landowner payments to fund maintenance activities. Each landowner in the watershed was required to
make an initial payment at the time of construction as well as 15 annual payments. The amount was based on a percentage of the construction costs. This fund is controlled by the district and is used to pay maintenance expenses for structures built on private land. The supervisors have signed maintenance agreements and assumed maintenance responsibility for structures built on county roads.

Each year a part-time inspector is hired by the district to examine each watershed structure. He is responsible for routine tasks of clearing brush, cutting weeds, and filling minor holes. Other problems are reported to the commissioners, who take action. For many years, commissioners personally inspected each watershed structure in Ida County. This practice was discontinued as the number of structures increased and as the commissioners became occupied with their own farms and businesses.

**County board of supervisors**

**Obligations for maintenance** The county's three supervisors and one supervisor who just retired were interviewed for the study. All four supervisors make a distinction between structures which are "ours," those structures built on roads, and structures which are "theirs," those structures which are on private land and therefore belong to the Soil Conservation Service. The supervisors take responsibility for the maintenance of "our" structures and leave the maintenance of "their" structures to SCS and the district. If there is a major failure on any of the structures, or if structures need to be replaced, the supervisors stated that the county could not afford such a major expense. The three supervisors currently in office would not be willing to raise taxes to pay for maintenance or replacement expenses. All four supervisors indicated they were primarily concerned with roads.

To date there have been few maintenance problems with any of the structures in the county. In the words of one supervisor: "Good contractors and good construction technology built structures which are essentially maintenance free."

**Linkages between actors** There is excellent cooperation between the supervisors, SCS, and the district commissioners in Ida County. There are clear areas of responsibility through informal agreements made over the last 12 to 15 years. The supervisors maintain the road structures while SCS and the district are responsible for everything else. The supervisors, the district commissioners, and SCS personnel meet at the beginning of each year to discuss construction plans and to coordinate work. They meet at other times throughout the year if there is a specific problem that needs their joint attention. The
maintenance of watershed structures is usually not discussed. One supervisors stated that "cooperation is good for the taxpayers; SCS input helps stretch the local tax dollar further."

**Responsibility for soil conservation** The supervisors believe that the landowner has prime responsibility for conservation, but that society can help through education and legislation which supports landowners' conservation efforts. They believe that there should be more education of the general public about the interrelationship between the preservation of land resources and the production of food.

The supervisors incorporate conservation benefits in county projects whenever possible. As one Supervisor stated: "Conservation is important. Everyone needs to do what they can do to help."

**Private property and public intervention** The county does not intervene to work on private land or to enforce appropriate conservation practices. The supervisors believe, however, that it is acceptable for the federal government to set and enforce standards for private use of land. Further, they believe that the federal government has the responsibility to safeguard the public's investment in the watershed structures, and it is therefore acceptable for the government to require appropriate care of the structures.

**District commissioners**

**Obligations for maintenance** The commissioners believe the district is responsible for the routine maintenance of the structures. Two of the five commissioners believe there are maintenance operations beyond the capability of the district (Table 5). All five commissioners indicated that any major expenses, such as repair of washouts and replacements, should be the responsibility of the Soil Conservation Service. Also, the commissioners do not know what will happen to the structures once they have filled with silt. In this sense, the future is uncertain for them. The structures are currently in good repair, however, so this is not an immediate concern. Hence, with a choice of high, average, or low priority, all five indicated that maintenance of structures is only average priority.
Table 5. District Commissioners, Ida County: Perception of maintenance and maintenance responsibilities (n=5)

<table>
<thead>
<tr>
<th>Questions</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is current maintenance adequate?</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Does the district have maintenance responsibilities?</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Are there maintenance operations beyond the capability of local sponsors?</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Linkages between actors. There are currently good cooperative arrangements between the district, the county board of supervisors, and SCS (Table 6). The commissioners meet annually with the supervisors to discuss how they can support one another and to conduct joint planning for the next year.

Relations between the commissioners and the landowners are acceptable. The farmers are perceived to be generally cooperative, particularly younger farmers. Apathy among some of the landowners is a barrier to good working relations. Most commissioners, however, indicated there were no major problems between groups.

When the watershed program began in Ida County, there was great difficulty in getting farmers to join watershed projects. They had many excuses such as: the dams would break; they didn't have the money; they didn't want someone telling them what to do; they didn't like something new; they didn't want terraces on their land. Today, the younger farmers are much more cooperative and willing to work with the district and with SCS.

The maintenance of watershed structures is seldom discussed during either formal or informal interactions between the major actors. Because there are no major problems with the structures, agency personnel and landowners have little motivation to focus on maintenance issues.
Table 6. District Commissioners, Ida County: Satisfaction with working relationship between groups and perceived barriers to effective working relationships (n=5)

<table>
<thead>
<tr>
<th>Groups</th>
<th>Extent of Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>District Soil Conservation Service</td>
<td>4</td>
</tr>
<tr>
<td>Board of Supervisors</td>
<td>4</td>
</tr>
<tr>
<td>Landowners</td>
<td>0</td>
</tr>
</tbody>
</table>

Suggested barriers to effective working relationships

- inadequate attention to small problems - 1
- no problems - 4

Responsibilities for soil conservation

For the commissioners, soil conservation connotes some notion of responsibility for the future. As one Commissioner said; "One generation needs to take care of the next; protecting the soil is the best way to do this. It is our obligation." And in the words of another: "I am only here for a short time. I need to keep the land viable and productive for future generations."

Two commissioners believe the landowner must have prime responsibility for soil conservation (Table 7). The landowner, however, must have the economic incentives to adopt conservation practices. Other commissioners believe it is the responsibility of the federal government to provide these incentives, and thus there should be a joint responsibility for soil conservation. A system of rewards and punishments should be maintained to ensure that farm practices are consistent with conservation requirements. The commissioners indicated that conservation measures are often not used on rented ground because renters do not have the same incentives to practice conservation as do owner-operators.
Table 7. District Commissioners, Ida County: Perceived responsibilities for conservation and suggested conservation responsibilities society and landowners should assume (n=4)

<table>
<thead>
<tr>
<th>Who has prime responsibility to protect soil resources for future generations?</th>
<th>Society</th>
<th>Joint responsibility</th>
<th>Landowner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What should society do to protect soil resources?</th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>provide funds for programs -</td>
<td>2</td>
</tr>
<tr>
<td>establish and enforce regulations -</td>
<td>2</td>
</tr>
<tr>
<td>education -</td>
<td>2</td>
</tr>
<tr>
<td>set standards -</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What should landowners do to protect soil resources?</th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>conservation tillage practices -</td>
<td>3</td>
</tr>
<tr>
<td>conservation practices -</td>
<td>2</td>
</tr>
</tbody>
</table>

Private property and public intervention The commissioners believe farmers have the prime responsibility to maintain the land's productivity for future generations (Table 8). Ideally the individual farmer would voluntarily farm in this manner. The commissioners see little evidence of this, however, and so government intervention and regulation is needed to force acceptable conservation practices. In the words of one commissioner: "The federal government needs to intervene to shake things up a bit." The commissioners, generally, do not like the idea of intervention. However, it is an acceptable last resort measure to control soil erosion. Two of the commissioners indicated that cross-compliance is an acceptable method of intervention and control.
Table 8. District Commissioners, Ida County: Responses to statements about private property and public intervention (n=3)

<table>
<thead>
<tr>
<th>Statements</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation is a local/landowner issue and the federal government should stay out of it.</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Because taxpayers benefit from conventional farming practices, they should bear the expense of repairing the soil erosion that results from these practices.</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>The federal government has the responsibility to safeguard the public's investment in watershed structures by ensuring that they are used and maintained properly.</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>The American farmer works primarily for himself and hence can use the land as he sees fit to maximize his profit.</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Because agriculture is dependent on the environment, farm operations should be regulated to minimize damage to the environment.</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

**Macro-influences** A decrease in cattle prices along with high government subsidies for row crops were the major outside influences shaping farm practices (Table 9). The rich soils in the area also provided an incentive to concentrate on row crops.

One commissioner described these influences in the following way. Because farmers could no longer make money with cattle, they plowed up their grasslands to raise corn and soybeans. When it again became profitable to raise cattle, farmers no longer had access to pasture. However, cattle could be raised in feed lots and fed the corn and soybeans grown on their former rangeland. Government subsidies made it possible for farmers to make a profit with grain, and cheap grain prices made it possible for farmers to profit from cattle. Thus, the incentives were to increase cropland to profit from government programs and to increase cattle herds to profit from cheap grain. Both practices contributed to increased soil erosion.

A change in land values and SCS rules curtailed the construction of watershed structures in Ida County. When crop prices were high and land values were inflated, the cost-benefit ratios used to determine whether or not a watershed structure should be built,
were positive. As prices and land values dropped, a project's cost-benefit ratio would no longer be acceptable and the dams and other devices could not be built. There was considerable construction activity for a time, and then nothing. The commissioners believe many more structures are still needed, but they do not believe they will ever be built.

Table 9. District Commissioners, Ida County: Macro-influences responsible for changes in cropping practices and their impact on watershed structures (n=5)

<table>
<thead>
<tr>
<th>Primary influences for change</th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>economic factors</td>
<td>5</td>
</tr>
<tr>
<td>government production programs</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Results of these changes for watershed structures</th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>increased row cropping</td>
<td>3</td>
</tr>
<tr>
<td>increased soil erosion</td>
<td>3</td>
</tr>
<tr>
<td>increased siltation of watershed structures</td>
<td>3</td>
</tr>
</tbody>
</table>

Farmers - Landowners

Obligations for maintenance Several farmers said that landowners in the county were initially told about their maintenance responsibilities. These farmers said, however, that many do not always remember, or they may choose not to remember. The lack of continuing contact or support from SCS contributed to farmers' "forgetting" about their maintenance responsibilities. The normal process was to "put in the structure and that was it."

Many farmers believe they have responsibility for the routine maintenance of their structures (Table 10). However, because they pay into a maintenance fund, they believe any maintenance activity which incurs costs is not their responsibility but the responsibility of the district who controls the fund. Other farmers believe paying into the fund absolves them of maintenance responsibility. As one farmer said: "As long as I am paying into the fund, they (SCS or the district) have prime responsibility for maintenance. It is not my responsibility."

Several farmers did indicate that even though they felt no basic responsibility for maintenance, they would be willing to do something if they know what to do. Generally, maintenance of the structures is not a high priority for Ida County landowners. Four of the
seven farmers indicated it was a low priority, while three indicated it was only an average priority for them.

Table 10. Landowners, Ida County: Perception of maintenance responsibilities and maintenance capabilities of local sponsors (n=9)

<table>
<thead>
<tr>
<th>Questions</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do landowners have responsibility to keep weeds and brush cut around their structures and to perform other simple maintenance tasks?</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Do landowners have responsibility for more complex maintenance and repair tasks?</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Are there maintenance operations beyond the capability of local sponsors?</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Should SCS fund the maintenance and repair of your watershed structures?</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

Linkages between actors Landowners believe there has been excellent support and cooperation from the two district conservationists (DC) in Ida County since the formation of the soil conservation district. The district conservationists have provided stability and continuity. Because each DC recognized the advantage of working cooperatively with those involved in the watershed program, Ida County has evolved good working relationships between the county board of supervisors, the commissioners, and area farmers.

Most farmers now have little or no contact with either SCS or the district to discuss the maintenance of watershed structures (Tables 11). SCS provided initial information to five of the farmers, but there was no continuing contact (Table 12). As a result, it is hard for the farmers to have strong linkages with either of these agencies.
Table 11. Landowners, Ida County: Satisfaction with working relationship between landowners and organizations (n=8)

<table>
<thead>
<tr>
<th>Extent of Satisfaction</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
<th>No Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>District Soil Conservation Service</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Board of Supervisors</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>District Commissioners</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 12. Landowners, Ida County: Training and support given for performing required maintenance tasks (n=8)

<table>
<thead>
<tr>
<th>Questions</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were you initially instructed how to perform routine maintenance?</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Have you received continued maintenance training and support?</td>
<td>0</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SCS</th>
<th>The District Commissioners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who provided your initial instruction?</td>
<td>5</td>
</tr>
</tbody>
</table>

Responsibilities for soil conservation. Many of the farmers believe they must take responsibility for the land (Table 13). Government programs, however, set the priorities for how they are to farm, which is often contrary to acceptable conservation practices. If farmers do not take advantage of government programs, they suffer financially, and few of them are in a position to sacrifice. Farmers who rotated crops and tried to practice good conservation were penalized by government programs which discouraged crop rotations and judicious use of chemical inputs. Several farmers believe society should use law, education, and economic incentives to encourage farmers to practice conservation.
One respondent observed that many farmers would like to use more soil conservation practices, but they face economic pressure from families, banks, and the government to maximize profits. As a result, these farmers are trapped into attaining short-term goals and using cultivation practices which are harmful to the environment.

Table 13. Landowners, Ida County: Perceived responsibilities for conservation and suggested conservation responsibilities society and landowners should assume (n=8)

<table>
<thead>
<tr>
<th>Who has prime responsibility to protect soil resources for future generations?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Society</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

What should society do to protect soil resources? Times mentioned
- provide funds for programs - 4
- establish and enforce regulations - 5
- education - 3
- financial incentives - 4

What should landowners do to protect soil resources? Times mentioned
- conservation tillage practices - 3
- crop rotations - 4
- minimal chemical inputs - 2
- land treatment - 5

Private property and public intervention  Several farmers believe the watershed structures belong to the public and, hence, the government has an obligation to intervene to ensure that the structures are used as intended (Table 14). Others believe the structures belong to the private landowner. A final group believe the structures are owned jointly.

Farmers believe the federal government needs to financially support conservation efforts (Table 15). These farmers believe government farm programs have helped created current soil erosion problems. The government, therefore, needs to help pay to solve these
problems. At the same time, farmers also believe landowners have to take greater responsibility for the land if they do not want the government telling them how to farm. The farmers are well aware that if they do not use the land responsibly, the government will intervene to make farm management decisions for them.

Farmers stated they would prefer to make conservation decisions themselves. However, if farmers do not, then it is acceptable for society to regulate farm operations to minimize damage to the environment. Farmers were unanimous, however, in their belief that "if the government is going to regulate, then it had better know what it is talking about."

Table 14. Landowners, Ida County: Perceived ownership of the watershed structures (n=9)

<table>
<thead>
<tr>
<th>Question</th>
<th>Government</th>
<th>Landowner</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who owns the watershed structures on your land?</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 15. Landowners, Ida County: Responses to statements about private property and public intervention (n=8)

<table>
<thead>
<tr>
<th>Statements</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation is a local/landowner issue and the federal government should stay out of it.</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Because taxpayers benefit from conventional farming practices, they should bear the expense of repairing the soil erosion that results from these practices.</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>The federal government has the responsibility to safeguard the public's investment in watershed structures by ensuring that they are used and maintained properly.</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>The American farmer works primarily for himself and hence can use the land as he sees fit to maximize his profit.</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Because agriculture is dependent on the environment, farm operations should be regulated to minimize damage to the environment.</td>
<td>7</td>
<td>1</td>
</tr>
</tbody>
</table>
Macro-influences From the farmer’s perspective, the major outside influences have been economic factors and government programs (Table 16). Farmers could not make money with cattle so they changed to row crops and plowed up much of their grasslands to capture high grain prices and later to benefit from government subsidies. Farmers see themselves driven by government programs. Often they see themselves forced into making management decisions they know are harmful to the environment, but they believe they have no alternative.

One respondent described farmers as pawns. He believed the watershed program, particularly in the early days, used the farmer as part of an experiment. No one knew how to solve erosion problems. Various solutions were tried, however, and each time farmers were forced to adjust to new regulations and programs. Farmers needed government financial assistance, so they participated in the programs and followed the regulations. But these farmers were used by the government for some larger social purpose which they may or may not have wanted to support.

Society’s increased awareness of the need to save soil and protect groundwater supplies was an issue raised by two farmers. This awareness and concern has stimulated the development of conservation programs which have profoundly influenced current farm operations and will, in all likelihood, influence them even more in the future.

Table 16. Landowners, Ida County: Macro-influences responsible for changes in cropping practices and their impact on watershed structures (n=9)

<table>
<thead>
<tr>
<th>Primary influences for change</th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>economic factors -</td>
<td>3</td>
</tr>
<tr>
<td>government production programs -</td>
<td>3</td>
</tr>
<tr>
<td>rise of a conservation ethic -</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Results of these changes for watershed structures</th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>increased row cropping -</td>
<td>3</td>
</tr>
<tr>
<td>increased soil erosion -</td>
<td>3</td>
</tr>
<tr>
<td>increased siltation of watershed structures -</td>
<td>4</td>
</tr>
<tr>
<td>watershed programs -</td>
<td>1</td>
</tr>
</tbody>
</table>
Summary

Older respondents indicated that before the Little Sioux Watershed program came to Ida County much of the land was highly eroded. They said there were many gullies and remedial action was needed. Today, however, they believe the county is much different. The watershed program has eliminated the biggest problems, and severe erosion is under control.

The consensus of the respondents is that the structures are in good repair and fulfilling their intended function. More structures should be built, but the projects are too expensive now and the computation of cost and benefits does not justify additional construction. As a result, the district and SCS are concentrating on building terraces.

The district, the supervisors, and SCS work well together and make a formal effort to coordinate their work. Landowners are generally credited with being the least cooperative. Landowners, for their part, claim that they must operate in a complex world that primarily rewards economic decisions and not conservation decisions. If society wants farmers to skew their management decisions toward conservation ends, then society needs to provide economic rewards to make those decisions attractive.

The role of the federal government as a regulator is resented, particularly by farmers, yet they welcome the income or help which government brings. The commissioners and supervisors look to the federal government as a source of funds for any major expense that might be related to the watershed structures. Currently there is no need for federal financial assistance. In the future, however, the potential for major expenses and the consequent need for federal funds is high. The commissioners have toured other districts in the Little Sioux area and have seen the problems those districts have with their older structures. All five commissioners recognize that someday those problems will come to Ida county, and they know they do not have the financial capability to solve the problems.

Monona County

Over 400 structures have been built in Monona County by the Little Sioux Watershed Program. Prior to 1948, when construction of the watershed structures began, a few of the wealthier landowners had organized private efforts to teach farmers about conservation tillage and planting techniques and to build small dams to control gullying. And, in the
1930s, the Civilian Conservation Corps had an active program of building dams and other watershed structures.

Once the Little Sioux program began, farmers were receptive to building dams because they stopped the gullies. Farmers were less willing, however, to build terraces. Terraces interfered too much with their farming, and many farmers did not see the connection between the viability of the dams and the use of terraces to protect them from excess siltation. Since terraces were not required during the first years of the program, few farmers built them. As a result, many watershed structures were built without adequate protection, and the holding ponds of these structures filled more quickly with silt, which decreased their useful life.

A maintenance fund was established from the contributions of farmers who joined the organized watersheds. Each farmer was required to make a one-time contribution to the fund when the construction of watershed structures began on his/her land. Additional maintenance funds were provided by the county board of supervisors who agreed to financially support maintenance activities (Lamp 1948).

Today the watershed structures are inspected once every three years by a part-time inspector. In the two years that a structure is not visited, the inspector sends a card to the landowner asking him/her to inspect the structure and to report any problems. Some farmers comply with the request to inspect their own structures and to report any problems; many farmers do not. The inspector completes simple maintenance tasks himself. Other maintenance needs are presented to the commissioners for their consideration and to approve funding for repair. The commissioners are ultimately responsible for maintenance, and they involve the Soil Conservation Service as needed.

Half of Monona County is bottom land; the other half is rugged hill country. The geographic division has served to divide the people and to set patterns of interaction that impact on the issues related to the maintenance of the watershed structures. Animosity is not as great as earlier, yet the patterns that were established as a result of the split continue to influence how people interact today.

The relevant issue for the present study is that landowners in the hills received federal assistance for their water problems while landowners in the lowlands received little or none. An extensive system of drainage ditches was built on the lowland to make it possible to farm this ground. Federal assistance initiated the work, but the assistance was withdrawn. Farmers were forced to continue the work at their own expense. Extensive maintenance
work is needed to keep the drainage ditches functioning, and farmers must pay high drainage taxes ($12-20/acre) to fund this maintenance work. No general county revenues go for the support of the drainage system. The bottom land farmers resent hill farmers receiving county money for the maintenance of their watershed system. The lowland farmers are thus not supportive of requests to increase the county's contribution to the maintenance of the upland watershed structures.

**County board of supervisors**

**Obligations for maintenance** Monona County has three supervisors. Their primary concern is for the maintenance of the watershed structures which are on roads. They help with the maintenance costs of watershed structures on private land through an annual contribution to the district commissioners. The contribution is a line item in the county's budget and is funded from Rural Assistance Money, a state fund to be used for the benefit of rural people. The amount approximates what would be collected were the supervisors to levy the 1/4 mil tax on agricultural land which is allowed by the Code of Iowa for the maintenance of watershed structures. The actual tax is not collected because of the complicated bookkeeping procedures that would be required. By providing these funds, the supervisors believe they are fulfilling their maintenance obligations for the structures. All three believe SCS has prime responsibility for maintenance of all non-road watershed structures.

The supervisors would prefer not to have the county involved with the maintenance of any watershed structures. They would prefer a system similar to the drainage districts where individual farmers pay for maintenance proportionate to their need.

**Linkages between actors** There is little or no contact in Monona County between the supervisors, district commissioners, and SCS. In the past, the three groups met annually to talk about common problems and concerns, but they have not held regular meetings for many years. The supervisors said that the district's annual request for maintenance funds is now sent by mail. The supervisors believe SCS would like closer working relations with them. For the supervisors, however, it is not a major concern.

**Responsibilities for soil conservation** Because the county has little money to support conservation projects, the supervisors believe the landowners and the Soil Conservation Service should be responsible for soil conservation activities and concerns. The supervisors are primarily concerned with building and maintaining roads.
A related issue for the supervisors is their concern that the swampbuster provision of the Food Security Act will return much of the lowland area to a swamp. They realize the Act is concerned with saving soil, but they believe the people in Monona County who live on the bottom land are more interested in controlling water. The supervisors believe land should be used for production. Since they see a swamp as unproductive land, they do not support efforts to return lowland area to its original condition.

Private property and public intervention The county does not work on private land unless it is part of a right-of-way. The supervisors believe, however, that the federal government does have responsibility to set standards for appropriate behavior by private individuals. From the supervisors' perspective, it is perfectly acceptable for the federal government to intervene to ensure that the watershed structures are used and maintained properly.

District commissioners

Obligations for maintenance The commissioners believe the district is responsible for maintenance tasks (Table 17). Because the district is short of funds, however, the commissioners prioritize the maintenance work. Urgent maintenance needs are given top priority for funding. Less serious problems are given a lower priority, and usually are not approved for funding.

The commissioners are concerned about the annual maintenance contribution from the county board of supervisors. They believe the county board is an unreliable source of funds. As a result, the commissioners prefer to use the county board's contribution only for the most urgent tasks and to save as much as possible for future major expenses.

The commissioners are uncertain about what to do with dams that have filled with silt. They do not have the money to rehabilitate these structures or to rebuild them. Currently they are doing nothing. The commissioners believe that even though a holding pond is filled with silt, it still functions to slow runoff. Hence, the commissioners are content to wait and see what happens to these structures or what decisions are made at higher levels in SCS regarding these structures.

The commissioners are also concerned about the number of older structures in Monona County. Hence, with a choice of high, average, or low priority, all commissioners indicate that maintenance is a high priority for them. They do not have sufficient funds to replace these structures or to make major repairs on them. They believe, however, that SCS
has access to emergency repair funds that could be used if needed. They are also hopeful that new federal legislation will provide funds for the replacement of watershed structures.

In summary, money is a major problem for the commissioners. Given their perceived financial limitations, however, they believe they are addressing the most urgent maintenance needs. There is more maintenance and repair work they would like to complete, but at this time they have insufficient funds.

Linkages between actors The commissioners disagree with the county board of supervisors over how much responsibility the board should have for maintenance (Table 18). The commissioners would like the supervisors to take greater responsibility. The supervisors, however, are content with their current level of support. The supervisors, however, have been willing to be more cooperative in the past few years as they receive help from SCS to construct road structures. The commissioners are also concerned with the lack of support from some landowners.

Table 17. District Commissioners, Monona County: Perception of maintenance and maintenance responsibilities (n=5)

<table>
<thead>
<tr>
<th>Questions</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is current maintenance adequate?</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Does the district have maintenance responsibilities?</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Are there maintenance operations beyond the capability of local sponsors?</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

The commissioners feel overwhelmed. Now that major expenses are needed to repair and rehabilitate watershed structures in Monona County, they perceive the federal government, who started the watershed program, withdrawing support and leaving financial responsibility for the program to the local sponsor. The commissioners also face uncertain funding from the supervisors and thus are reluctant to make even minor repairs. Feeling overwhelmed sometimes paralyzes the commissioners and prevents them from making decisions or taking needed action. In general; the commissioners believe they "may have more responsibility than time and expertise would warrant."
Responsibility for soil conservation  The commissioners believe landowners should have prime responsibility for conservation (Table 19). Society, however, should encourage conservation by setting standards and providing needed dollars. The commissioners believe, also, that for too long society has allowed farmers to farm in ways which are damaging to the environment. The trend is now shifting to require more responsibility from the farmer. The commissioners are supportive of this change, but they want it accomplished with a minimum of regulation.

The commissioners want SCS to better educate farmers about their maintenance responsibilities. They believe many farmers do not realize what their maintenance responsibilities are or what they should do to maintain the structures.

Table 18. District Commissioners, Monona County: Satisfaction with working relationship between groups and perceived barriers to effective working relationships (n=5)

<table>
<thead>
<tr>
<th>Groups</th>
<th>Extent of Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>District Soil Conservation Service</td>
<td>5</td>
</tr>
<tr>
<td>Board of Supervisors</td>
<td>0</td>
</tr>
<tr>
<td>Landowners</td>
<td>2</td>
</tr>
</tbody>
</table>

Suggested barriers to effective working relationships

<table>
<thead>
<tr>
<th></th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertainty about funding</td>
<td>5</td>
</tr>
<tr>
<td>Landowners have a poor attitude</td>
<td>1</td>
</tr>
<tr>
<td>More personnel are needed</td>
<td>1</td>
</tr>
<tr>
<td>Poor communication</td>
<td>1</td>
</tr>
</tbody>
</table>

Private property and public intervention The commissioners believe the federal government needs to promote conservation education and provide financial and technical support for the adoption of conservation practices (Table 20). And, since the government built the watershed structures, the commissioners believe it should take needed action to ensure that the structures are used and maintained properly. Finally, the commissioners
believe the farmer is responsible for taking care of the land. However, if necessary, the government should regulate farm practices to minimize damage to the environment. If there are no regulations, the commissioners fear that farmers may be reluctant to use appropriate soil conservation practices. The commissioners indicated very strongly that those landowners who exploit the land need to be controlled. In general, the commissioners believe the Food Security Act of 1985 provides a good model for government regulation of farming.

Table 19. District Commissioners, Monona County: Perceived responsibilities for conservation and suggested conservation responsibilities society and landowners should assume (n=5)

<table>
<thead>
<tr>
<th>Who has prime responsibility to protect soil resources for future generations?</th>
<th>Society</th>
<th>Joint responsibility</th>
<th>Landowner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

**What should society do to protect soil resources?**

<table>
<thead>
<tr>
<th></th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>provide funds for programs</td>
<td>2</td>
</tr>
<tr>
<td>set standards</td>
<td>1</td>
</tr>
<tr>
<td>establish and enforce regulations</td>
<td>2</td>
</tr>
<tr>
<td>education</td>
<td>2</td>
</tr>
<tr>
<td>increase awareness</td>
<td>1</td>
</tr>
</tbody>
</table>

**What should landowners do to protect soil resources?**

<table>
<thead>
<tr>
<th></th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>conservation tillage practices</td>
<td>4</td>
</tr>
<tr>
<td>crop rotations</td>
<td>2</td>
</tr>
</tbody>
</table>

**Macro-influences** The commissioners said that government farm policies which encouraged maximum production made a significant contribution to the early degradation of many watershed structures (Table 21). And, the policy which tied responsibility for maintenance of terraces to the land owner instead of to the land, also hastened the decline of the watershed structures. When a piece of land was sold, the new owner had no obligation
to maintain the terraces which had been built to reduce erosion and protect the structures. Many new owners ploughed the terraces on new land to farm it "fence row to fence row." The result was a large increase in soil erosion, which filled holding ponds and shortened the dams' expected life. The commissioners or SCS were unable to alter the practice.

Farmers - landowners

Obligations for maintenance  All farmers are willing to take responsibility for simple maintenance tasks, but they believe that maintenance tasks that cost money should be the responsibility of the district or of SCS (Table 22). Most farmers believe that the Soil Conservation Service should fund the maintenance and repair of the structures. With a choice of high, average, or low priority, three Monona County farmers indicated that maintenance of the structures is a low priority while four indicated that it is an average priority.

Table 20. District Commissioners, Monona County: Responses to statements about private property and public intervention (n=5)

<table>
<thead>
<tr>
<th>Statements</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation is a local/landowner issue and the federal government should stay out of it.</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Because taxpayers benefit from conventional farming practices, they should bear the expense of repairing the soil erosion that results from these practices.</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>The federal government has the responsibility to safeguard the public's investment in watershed structures by ensuring that they are used and maintained properly.</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>The American farmer works primarily for himself and hence can use the land as he sees fit to maximize his profit.</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Because agriculture is dependent on the environment, farm operations should be regulated to minimize damage to the environment.</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 21. District Commissioners, Monona County: Macro-influences responsible for changes in cropping practices and their impact on watershed structures (n=5)

<table>
<thead>
<tr>
<th>Primary influences for change</th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>economic factors</td>
<td>3</td>
</tr>
<tr>
<td>government production programs</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Results of these changes for watershed structures</th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>increased row cropping</td>
<td>2</td>
</tr>
<tr>
<td>increased soil erosion</td>
<td>5</td>
</tr>
<tr>
<td>increased siltation of watershed structures</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 22. Landowners, Monona County: Perception of maintenance responsibilities and maintenance capabilities of local sponsors (n=10)

<table>
<thead>
<tr>
<th>Questions</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do landowners have responsibility to keep weeds and brush cut around their structures and to perform other simple maintenance tasks?</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Do landowners have responsibility for more complex maintenance and repair tasks?</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Are there maintenance operations beyond the capability of local sponsors?</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Should SCS fund the maintenance and repair of your watershed structures?</td>
<td>7</td>
<td>1</td>
</tr>
</tbody>
</table>

Linkages between actors

Unless landowners have problems with their watershed structure, they have little contact with SCS or conservation district personnel (Table 23). Farmers who bought land with extant structures are the most isolated. These farmers are unclear about who owns the structures, who is responsible for them, and why the structures are on their land. These farmers make no payments to a maintenance fund; they receive no maintenance instructions; because the structures are inspected only once every three years,
they have no real contact with the conservation district or SCS; and they do not know the history of the watershed project. Five farmers indicated they received initial information about maintenance from SCS but there was no continued training or support (Table 24).

The Iowa Department of Natural Resources (DNR) is buying land in the area for the Loess Hills Reserve. Once the DNR purchases land, it is removed from the tax base, which increases tax liabilities for the other county landowners. The increased taxes are making landowners angry and contributing to their ill feelings toward government agencies in general.

Table 23. Landowners, Monona County: Satisfaction with working relationship between landowners and organizations (n=8)

<table>
<thead>
<tr>
<th>Extent of Satisfaction</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
<th>No Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>District Soil Conservation Service</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Board of Supervisors</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>District Commissioners</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 24. Landowners, Monona County: Training and support given for performing required maintenance tasks (n=10)

<table>
<thead>
<tr>
<th>Questions</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were you initially instructed how to perform routine maintenance?</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Have you received continued maintenance training and support?</td>
<td>0</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SCS</th>
<th>The District Commissioners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Who provided your initial instruction?</td>
<td>5</td>
</tr>
</tbody>
</table>
Responsibilities for conservation  Most farmers believe the landowner is ultimately responsible for conservation (Table 25). But these farmers believe society should help farmers practice conservation by sponsoring educational programs, providing incentives, and imposing regulations when needed. Farmers said that if only restrictions are imposed, they will resist adopting conservation practices; if incentives are provided, they will be more cooperative in adopting these practices.

Other farmers believe that, while conservation and the land is important, land is still only an input in the production process. One farmer believes that where the top soil is deep, it is acceptable to lose more. Thus there should be local standards for soil loss. To this farmer, "environmentalists are like the carpetbaggers who traveled in the post-Civil War South."

Other farmers are uncertain if they will be able to comply with conservation regulations. After visiting demonstration fields where appropriate land treatments have been applied, these farmers conclude the land can no longer be farmed because terraces on this land are too close together. Farmers on vulnerable land fear they will have to return their fields to grass and pasture and as a result be forced out of farming. One farmer, however, was more optimistic. He believes "if people farm right, they can farm this soil. There needs to be proper management and use of mechanical technology."

For many farmers, responsibility for conservation is a very personal matter. "My responsibility is to take care of my land. I don't have the right to tell others what to do with their land." Farmers do not like to be pushed on conservation matters.

Private property and public intervention  Some farmers understand the public/private issue in terms of the distinction they make between watershed structures and land treatment (Table 26). The structures were built by the government after being granted an easement by the farmer. The government thus owns the structures, and it is acceptable for it to intervene to maintain them and to ensure their proper use. Terraces, however, were built without any easement. Hence, they are private property, and the government has no right to require maintenance. What is unclear to many farmers is who owns and who is responsible for the watershed structures which have ceased to function. Some farmers believe once a structure has completed its useful life, ownership reverts to the landowner.
Table 25. Landowners, Monona County: Perceived responsibilities for conservation and suggested conservation responsibilities society and landowners should assume (n=10)

<table>
<thead>
<tr>
<th>Who has prime responsibility to protect soil resources for future generations?</th>
<th>Society</th>
<th>Joint responsibility</th>
<th>Landowner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>9</td>
</tr>
</tbody>
</table>

**What should society do to protect soil resources?**

- provide funds for programs - 4
- provide monetary incentives - 4
- establish and enforce regulations - 4
- education - 2

**What should landowners do to protect soil resources?**

- conservation tillage practices - 3
- crop rotations - 3
- land treatment - 6
- minimal chemical inputs - 1

Some farmers believe they own the land and can use it as they see fit to maximize their profit (Table 27). Most, however, recognize that government needs to establish and enforce standards for the proper use of land to minimize environmental damage. Farmers realize they must be aware of these limits and farm within them. Farmers want outsiders to recognize that the farmer must use the land to make a living.

Farmers acknowledge the importance of farm regulations and the inevitability of additional regulations, but they do not want a "non-farmer bureaucrat" telling them how to farm. The regulator has not earned the right to tell them how to farm.

**Macro-influences** Upland farmers in Monona County spoke of an encroaching outside world that has changed the way farmers in the hill country relate to one another. The early watersheds were held together by cooperation and personal relations. As the original farmers left, new owners came not for the purpose of becoming a part of the community but
primarily to make profits. The sense of community and mutual support broke down. Many new owners became large operators and took advantage of government programs to maximize profits. Other new owners established large feedlot operations. Because their profits come from cattle and not rowcrops, these farmers are not dependent on the 1985 Food Security Act. Thus, they are not constrained by its cross-compliance provisions and are not concerned about soil conservation issues.

The incentives provided by government programs to maximize production motivated farmers to turn woods and grassland into money producing crops (Table 28). The farmers believe greed was driving the majority of their peers. The most extreme example mentioned by nearly every respondent in Monona County was of a farmer who tried to convert more than 700 acres of woods and pasture into cropland. He destroyed the land and was never able to produce a crop. He did, however, establish a large corn base for which he received large government subsidies. He eventually went bankrupt, but now is receiving government assistance to repair his damaged land. Farmers resent the fact that those who exploited the land to maximize profits and reap high government subsidies are now receiving government assistance to repair the environmental damage they caused. The resentment is strongest among those who used moderation and attempted to farm in less environmentally damaging ways.

Table 26. Landowners, Monona County: Perceived ownership of the watershed structures (n=10)

<table>
<thead>
<tr>
<th>Question</th>
<th>Government</th>
<th>Landowner</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who owns the watershed structures on your land?</td>
<td>8</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 27. Landowners, Monona County: Responses to statements about private property and public intervention (n=9)

<table>
<thead>
<tr>
<th>Statements</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation is a local/landowner issue and the federal government should stay out of it.</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Because taxpayers benefit from conventional farming practices, they should bear the expense of repairing the soil erosion that results from these practices.</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>The federal government has the responsibility to safeguard the public's investment in watershed structures by ensuring that they are used and maintained properly.</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>The American farmer works primarily for himself and hence can use the land as he sees fit to maximize his profit.</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Because agriculture is dependent on the environment, farm operations should be regulated to minimize damage to the environment.</td>
<td>7</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 28. Landowners, Monona County: Macro-influences responsible for changes in cropping practices and their impact on watershed structures (n=8)

<table>
<thead>
<tr>
<th>Primary influences for change</th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>economic factors</td>
<td>8</td>
</tr>
<tr>
<td>government production programs</td>
<td>3</td>
</tr>
<tr>
<td>rise of a conservation ethic</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Results of these changes for watershed structures</th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>increased row cropping</td>
<td>5</td>
</tr>
<tr>
<td>increased soil erosion</td>
<td>8</td>
</tr>
<tr>
<td>increased siltation of watershed structures</td>
<td>3</td>
</tr>
<tr>
<td>conservation programs</td>
<td>1</td>
</tr>
</tbody>
</table>
Summary

There is general agreement that the conservation district has primary responsibility for the maintenance of the watershed structures. The district, however, believes it is responsible only for less expensive maintenance items. The commissioners perceive their financial situation to be precarious and hence, they are reluctant to spend money. Their main source of funds, the county board of supervisors, is content for the moment to make an annual contribution for maintenance, but it is unwilling to increase the contribution. The commissioners do not perceive the supervisors to be a dependable source of funds. Ultimately, both the commissioners and the supervisors look to SCS to fund major maintenance and repair problems.

Relations are strained or non-existent between the supervisors and SCS and between the supervisors and the commissioners. Currently there is little or no contact or cooperation. SCS and the district generally have a good working relationship. However, SCS would like the district to take more responsibility for maintenance, which the district is reluctant to do; and this has created tension between them.

There is agreement across respondents that landowners have prime responsibility for taking care of the land. The landowners are willing to accept this responsibility, but they want assistance from society to provide education and financial incentives to help them carry out their responsibilities. If necessary, it is acceptable for government to intervene to impose acceptable land-use standards. Farmers are well aware of society's increased concern about farm impacts on land and groundwater. Farmers will cooperate to meet society's environmental concerns, but farmers also need to make a profit.

Woodbury County

Since 1948, over 400 watershed structures have been built in Woodbury County by the Little Sioux Watershed project. The Soil Conservation Service provided cost-sharing funds and technical assistance to build the structures. Currently, the county is responsible for maintaining structures built on roads, and the conservation district is responsible for the maintenance of structures built on private land. SCS provides technical support to both the conservation district and the county.

The county board of supervisors were initially reluctant to financially support maintenance activities (Lamp 1948). Hence, landowner contributions were required to
establish a maintenance fund. The fund pays for maintenance of structures on private land. The commissioners, who nominally control expenditures from this fund, try to spend only the interest and leave the principle intact. Funding for the maintenance of road structures is provided by the county.

More recently, the supervisors agreed to hire a full-time inspector who works part-time for the county and part-time for the district. He inspects each structure annually. Problem structures are inspected more frequently. The inspector is responsible for completing minor maintenance tasks, such as cutting weeds and brush and filling small holes. For structures on private land, the inspector is authorized to spend up to $500 for any one maintenance project without approval from the commissioners. Maintenance projects requiring more than $500 to complete must be approved by the commissioners. The inspector makes an effort to regularly visit farmers and to talk with them about what they can do to keep their structures in good repair.

County board of supervisors

Obligations for maintenance The county's five supervisors are only generally aware of the arrangements for maintenance. To their knowledge, the maintenance of watershed structures is adequate in Woodbury County. In the words of one supervisor, "They (SCS) don't have a lot of old structures in poor repair." The maintenance of the structures is not a high priority for the supervisors. They recognize the importance of conservation but more as an abstraction. As a practical matter, the supervisors' time and energy are devoted to other issues, such as maintenance of roads, provision of social services, and general fiscal matters of the county.

Both supervisors interviewed believe the district conservationist (SCS) has prime responsibility for determining the priority for watershed maintenance activities and for funding them. The supervisors believe that in hiring the inspector, who has the responsibility for maintenance, they have fulfilled their maintenance obligations. If there are problems, the supervisors work with the county engineer and the district conservationist to resolve them.

Periodically, some supervisors do visit specific structures to observe problems. The supervisors are involved with the planning of watersheds only when road structures are being considered.
Linkages between actors  The supervisors believe their first responsibility is to the taxpayers and not to agreements made with the Soil Conservation Service or to some abstract notion of preserving the environment. With respect to conservation issues, the county board follows the direction of the Soil Conservation Service. However, when it is necessary to expend county funds to address conservation issues, the supervisors becomes more involved, and they are generally less willing to cooperate.

Both supervisors stated that issues of money and the extent of responsibility for the structures are the major contentions they have with the Soil Conservation Service. Also, they complained that changing federal rules make it difficult for them to know at any one time what their responsibilities are relative to the maintenance of the structures.

Woodbury County has inadequate funds for major repairs or for replacement of watershed structures. The supervisors, therefore, are concerned about what will happen to the structures and their future financial obligations for them. The supervisors view the Little Sioux Watershed project as another federal program that was started by the federal government then turned over to the local government for continuation. The supervisors, however, do not have adequate resources to operate and maintain the programs as originally intended. As a result, they are forced to pick and choose among programs to decide how they will spend their limited resources.

Responsibilities for soil conservation  The supervisors believe lack of cooperation from some landowners for implementing appropriate conservation practices is the biggest obstacle to the maintenance of the structures.

The supervisors are supportive of conservation efforts in the abstract, but they become less supportive as actual dollars are needed to support conservation efforts. Both supervisors said that financial support for conservation programs should come primarily from the federal government and from landowners. Conservation benefits the landowner in a direct sense, as well as society more generally. These groups, according to the supervisors, should thus pay the bill for conservation. The supervisors are supportive of the federal government's right and duty to see that watershed structures are used and maintained properly. They believe too that, if necessary, farm operations should be regulated to minimize damage to the environment.
District commissioners

Obligations for maintenance  The commissioners believe the maintenance of the watershed structures is adequate (Table 29). They are not aware of any serious problems that are not receiving attention. The structures are examined yearly so that the district can be aware of problems and take immediate action to correct problems. The commissioners also believe they can continue to financially handle routine maintenance. They have, however, inadequate funds for major repairs or for future replacement. As a result, the commissioners are worried about what will happen to the structures in the future. Hence, with a choice of high, average, or low priority, all five commissioners indicated that maintenance of structures is a high priority.

In the past, major repairs were considered as design deficiencies and, therefore, the responsibility of the Soil Conservation Service. The commissioners have thus tried to have as many repairs as possible designated as design deficiencies. As one commissioner said: "The government has a deeper pocket, so let them pay." Older structures cause the most problems. They were built with poorer techniques and materials than are available today, and they have not been maintained as well as the newer structures. Consequently, the commissioners believe much of the maintenance work on the older structures is rightly the responsibility of the Soil Conservation Service.

The commissioners said they sometimes do not understand what responsibility and authority they have for enforcing the provisions of the maintenance agreements. The source of their confusion is in the origins of the program in Woodbury County. SCS was anxious to have a large number of landowners participate in the program. As a persuasion device, SCS assured landowners and commissioners that it would be responsible for most maintenance tasks. Also, SCS did not hold farmers responsible for not complying with program regulations. SCS wanted projects completed, and thus individual projects were not allowed to fail. As a result, farmers did not understand what the program was about and what responsibilities they were to have. As well, the conservation district appeared to have little responsibility or authority relative to the maintenance agreements they signed. Consequently, many farmers and some of the commissioners continue to believe that SCS is obligated for maintenance of the watershed structures. This perception is reinforce for the commissioners when SCS makes major decisions for the commissioners. In the words of one commissioner: "It (SCS) sets the direction and the agenda of what is going to get done."
The commissioners see themselves as obligated to go through SCS to accomplish their work.

Being a commissioner is time-consuming and demanding. "For all practical purposes being a commissioner is not a volunteer position." The work is complicated because commissioners receive no real training for their work. They learn by doing.

Table 29. District Commissioners, Woodbury County: Perception of maintenance and maintenance responsibilities (n=5)

<table>
<thead>
<tr>
<th>Questions</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is current maintenance adequate?</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Does the district have maintenance responsibilities?</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Are there maintenance operations beyond the capability of local sponsors?</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

Linkages between actors The commissioners believe local government has little responsibility for conservation activities. For them, the individual landowner and state and federal government agencies have a much greater responsibility. Consequently, the commissioners have more contact with landowners and with SCS than they do with the county board of supervisors. Most commissioners have a low extent of satisfaction with landowners (Table 30).

A concern expressed by some of the commissioners is that SCS sometimes shows a lack of respect for landowners. At these times it conveys a sense of elitism and is insensitive to farmers' needs and problems. The commissioners believe SCS needs to speak the farmer's language. As one commissioner said: "Local people [the commissioners] can explain things better. Engineers sometimes have difficulty in relating to the farmers. They have a different language and priorities." The main issue is that bureaucratic and technical language means little to the farmer, and its use only fosters apathy and cynicism.

The district and SCS are developing an assistant commissioner program in Woodbury County. The purpose of the program is to make SCS and the work of the district more visible and to establish regular communications with farmers. This is a pilot program for the state.
Responsibilities for soil conservation. Most commissioners believe that the landowner must be responsible for conservation (Table 31). Society can provide education, set standards, and provide technical advice and money; but ultimately it is the responsibility of the individual farmers to care for their land by preserving its productivity for future generations. From the Commissioners' perspective, farmers currently give priority to the market and to profits when making farm management decisions. Conservation is usually a secondary concern. Realistically there needs to be a balance between conservation and profits. If farmers cannot make a profit, then they cannot practice conservation.

Private property and public intervention. All five commissioners believe some aspects of farming need to be regulated to ensure that farm practices are compatible with environmental needs (Table 32). As farmers, the commissioners know that farmers would like to keep the government out of farming. The commissioners believe, however, that at least some government intervention is necessary. As one commissioner said: "We need it to protect us from our worst tendencies."

Table 30. District Commissioners, Woodbury County: Satisfaction with working relationship between groups and perceived barriers to effective working relationships (n=5)

<table>
<thead>
<tr>
<th>Groups</th>
<th>Extent of Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>District Soil Conservation Service</td>
<td>2</td>
</tr>
<tr>
<td>Board of Supervisors</td>
<td>2</td>
</tr>
<tr>
<td>Landowners</td>
<td>0</td>
</tr>
</tbody>
</table>

Suggested barriers to effective working relationships

<table>
<thead>
<tr>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>different priorities: SCS build new, District maintain -</td>
</tr>
<tr>
<td>not enough enforcement of laws -</td>
</tr>
<tr>
<td>poor communication -</td>
</tr>
<tr>
<td>funding -</td>
</tr>
</tbody>
</table>
Farmers are fighting increased incursion into their management decisions. The commissioners realize, however, that an increasing number of people believe farmers should be forced to take greater financial responsibility for the externalities of their farm operation. These non-farm people believe an outside authority should set priorities and impose regulations. The commissioners try to have farmers realize they must farm more responsibly, or they will lose their freedom to farm as they please.

**Macro-influences** Several commissioners described our societal values as based on exploitation, maximization of short-term benefit, and "taking the easy way." The farmer is a reflection of this. In addition, the commissioners believe government farm programs have been a major cause of increased soil erosion (Table 33). The production incentives of these programs are anti-conservation. The programs provide incentives to maximize production by plowing more land and by applying more chemicals. The Food Security Act, however, is forcing farmers to be concerned about soil and water conservation. The commissioners believe for most farmers, profits are still more important than taking care of the environment. Conservation and concern for the environment, however, is slowly assuming greater importance.

**Farmers - landowners**

**Obligations for maintenance** Several farmers in Woodbury County said they were told that SCS or the district would maintain the structures and that the farmer would have no maintenance obligations. Other farmers believe because they pay into a maintenance fund they have no maintenance responsibilities. In the words of one farmer: "I pay for maintenance; someone else is supposed to take care of it." Farmers also raised the quality of construction issue. In the words of one farmers: "If SCS did not build them right in the first place, it is not the farmer's fault. There is nothing he can do about it. SCS should fix them."

Other farmers have a different understanding of their maintenance obligations. These farmers are willing to care for their structures and perform some maintenance tasks. Mainly, however, farmers believe their maintenance responsibilities are limited to keeping the structures seeded, keeping cattle off them, and reporting any problems. Generally, farmers believe SCS or the district is responsible for actual repair work (Table 34). The priority given to maintenance varied. Two farmers said it was a low priority; two said it was an average priority, and three said it was a high priority.
Most farmers said they take the structures for granted. The structures are a part of the landscape; and as long as they function properly, farmers are not concerned about them.

Table 31. District Commissioners, Woodbury County: Perceived responsibilities for conservation and suggested conservation responsibilities society and landowners should assume (n=5)

<table>
<thead>
<tr>
<th>Who has prime responsibility to protect soil resources for future generations?</th>
<th>Society</th>
<th>Joint responsibility</th>
<th>Landowner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What should society do to protect soil resources?</th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>provide funds for programs</td>
<td>2</td>
</tr>
<tr>
<td>establish and enforce regulations</td>
<td>3</td>
</tr>
<tr>
<td>education</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What should landowners do to protect soil resources?</th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>conservation tillage practices</td>
<td>3</td>
</tr>
<tr>
<td>lobby legislatures for stricter laws</td>
<td>1</td>
</tr>
<tr>
<td>minimal use of inputs</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 32. District Commissioners, Woodbury County: Responses to statements about private property and public intervention (n=5)

<table>
<thead>
<tr>
<th>Statements</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation is a local/landowner issue and the federal government should stay out of it.</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Because taxpayers benefit from conventional farming practices, they should bear the expense of repairing the soil erosion that results from these practices.</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>The federal government has the responsibility to safeguard the public's investment in watershed structures by ensuring that they are used and maintained properly.</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>The American farmer works primarily for himself and hence can use the land as he sees fit to maximize his profit.</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Because agriculture is dependent on the environment, farm operations should be regulated to minimize damage to the environment.</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 33. District Commissioners, Woodbury County: Macro-influences responsible for changes in cropping practices and their impact on watershed structures (n=5)

<table>
<thead>
<tr>
<th>Primary influences for change</th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>economic factors</td>
<td>4</td>
</tr>
<tr>
<td>government production programs</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Results of these changes for watershed structures</th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>increased row cropping</td>
<td>3</td>
</tr>
<tr>
<td>increased soil erosion</td>
<td>2</td>
</tr>
<tr>
<td>increased siltation of watershed structures</td>
<td>4</td>
</tr>
</tbody>
</table>
Table 34. Landowners, Woodbury County: Perception of maintenance responsibilities and maintenance capabilities of local sponsors (n=8)

<table>
<thead>
<tr>
<th>Questions</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do landowners have responsibility to keep weeds and brush cut around their structures and to perform other simple maintenance tasks?</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Do landowners have responsibility for more complex maintenance and repair tasks?</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Are there maintenance operations beyond the capability of local sponsors?</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Should SCS fund the maintenance and repair of your watershed structures?</td>
<td>7</td>
<td>0</td>
</tr>
</tbody>
</table>

**Linkages between actors** The amount of contact between farmers and SCS or district personnel is a function of how many problems the farmers have with their structures. Because contacts are primarily on an as-needs basis, if there are no problems, there is generally no contact. This contrasts with the intense involvement during the organizational and construction phase. Once the work was done, however, regular contact stopped, and the farmer became increasingly less aware of SCS and the district (Table 35).

Most landowners received no training or instruction for taking care of the watershed structures (Table 36). They learned about maintenance over time through informal contacts with the inspector, SCS staff, or district commissioners, but no formal training was given. Since there is not a history of contacts, and hence no history of learning, new landowners are unaware of the purpose for the structures as well as their maintenance responsibilities for them.

Farmers want SCS to recognize they are not dumb. Farmers believe very strongly that all knowledge does not come from books and classroom learning. They believe they possess practical, useful knowledge. When their knowledge is discounted and not utilized, farmers feel left out of the decision-making process for solving problems related to their structures or to other conservation matters. As a consequence, they lose interest in the
process. For the farmers, the ultimate measure of their regard for the Soil Conservation Service is a function of how well SCS has attended to their concerns, real or imaginary.

Table 35. Landowners, Woodbury County: Satisfaction with working relationship between landowners and organizations (n=8)

<table>
<thead>
<tr>
<th>Extent of Satisfaction</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
<th>No Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>District Soil Conservation Service</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Board of Supervisors</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>District Commissioners</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Responsibilities for soil conservation Most farmers indicated they know what farm practices should be used to care for the land. Yet they do not always use these practices. Their reasons are many: there are conflicting pressures; it is too much work; it is easier to let someone else solve the problem; government subsidy programs are based on practices which are contrary to good conservation practices. Farmers indicated that protecting or increasing income is the most important factor when considering farm management decisions. Conservation issues are important, but adequate income is their first consideration.

Farmers believe they should have the main responsibility for protecting the soil (Table 37). They believe, however, society should help with the costs of soil conservation. Society can also help by creating an environment that is conducive to the support of good conservation practices. Farmers generally need financial incentives to adopt good conservation practices. Without them, they will tend to farm in ways that maximize income rather than necessarily support good conservation.
Table 36. Landowners, Woodbury County: Training and support given for performing required maintenance tasks (n=8)

<table>
<thead>
<tr>
<th>Questions</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were you initially instructed how to perform routine maintenance?</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Have you received continued maintenance training and support?</td>
<td>0</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SCS</th>
<th>The District Commissioners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who provided your initial instruction?</td>
<td>2</td>
</tr>
</tbody>
</table>

Many of the farmers interviewed in Woodbury County are cynical about government efforts to promote conservation and good land management. They believe those farmers who plowed all the land they could, tore out terraces, and planted fence row to fence row in response to government-sponsored production incentives were directly responsible for the rapid deterioration of many of the watershed structures. Yet it is these farmers today who are receiving much of the help to put in terraces and to adopt other conservation practices. These farmers have been doubly rewarded: first, they reaped high profits by expanding their cropland and maximizing production, which also established a large corn base on which they could receive deficiency payments, and second they received financial assistance to implement a range of conservation practices. Those farmers who consistently practiced good conservation have only their sense of stewardship for a reward. The farmers' cynicism reinforces their belief that government should maintain the watershed structures. From their perspective, it was government policies that created excessive erosion problems.

Private property and public intervention. The farmers have varying perceptions on the question of who owns the structures (Table 38). Most farmers believe the structures belong to the government. A common refrain was: "It [the government] built them; it should take care of them." Consequently, it is acceptable for government to properly maintain the structures. On the other hand, farmers who indicated they owned the structures seemed to have a stronger sense of personal responsibility for the structures.

Farmers indicate support for government intervention to regulate private behavior when that behavior is not publicly responsible (Table 39). When land-use practices become
too destructive, many farmers believe government can act as a safety valve to ensure that land is used properly. Farmers do not like government intervention, but they recognize increased regulation of farm operations may be necessary in the future to minimize damage to the environment.

One farmer said that as individuals, farmers have the right to use land as they see fit. How they use it may not always be good for the land, but they still have the right.

Table 37. Landowners, Woodbury County: Perceived responsibilities for conservation and suggested conservation responsibilities society and landowners should assume (n=8)

<table>
<thead>
<tr>
<th>Who has prime responsibility to protect soil resources for future generations?</th>
<th>Society</th>
<th>Joint responsibility</th>
<th>Landowner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

What should society do to protect soil resources? Times mentioned
- become informed about conservation - 3
- legislation - 2
- provide funds for programs - 2
- establish and enforce regulations - 4
- monitor practices - 2

What should landowners do to protect soil resources? Times mentioned
- conservation tillage practices - 6
- crop rotations - 3
- minimal chemical inputs - 3
Table 38. Landowners, Woodbury County: Perceived ownership of the watershed structures (n=8)

<table>
<thead>
<tr>
<th>Question</th>
<th>Government</th>
<th>Landowner</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who owns the watershed structures on your land?</td>
<td>5</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 39. Landowners, Woodbury County: Responses to statements about private property and public intervention (n=8)

<table>
<thead>
<tr>
<th>Statements</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation is a local/landowner issue and the federal government should stay out of it.</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Because taxpayers benefit from conventional farming practices, they should bear the expense of repairing the soil erosion that results from these practices.</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>The federal government has the responsibility to safeguard the public's investment in watershed structures by ensuring that they are used and maintained properly.</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>The American farmer works primarily for himself and hence can use the land as he sees fit to maximize his profit.</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Because agriculture is dependent on the environment, farm operations should be regulated to minimize damage to the environment.</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

Macro-influences Farmers indicated that macro-economic forces have had a profound influence on farming practices in Woodbury County and on the viability of the structures in the Little Sioux area (Table 40). When cattle prices dropped, raising cattle became unprofitable. Because subsidies were available for row crops, farmers plowed grassland to plant row crops to obtain government payments. The high subsidies paid through government programs stimulated excess production to maximize profit. Much land
that was plowed should not have been. The result was increased soil erosion which filled structures more quickly than planned. Low farm prices forced even more cultivation and greater use of chemical inputs to maximize production and income.

Many farmers feel isolated and alienated. Woodbury County has grown increasingly urban, and the influence and needs of Sioux City tend to dominate the social and political agenda. Farmers believe political power is concentrated in the urban area, and the rural areas receive little attention and few of the available benefits and resources.

Table 40. Landowners, Woodbury County: Macro-influences responsible for changes in cropping practices and their impact on watershed structures (n=8)

<table>
<thead>
<tr>
<th>Primary influences for change</th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>economic factors</td>
<td>7</td>
</tr>
<tr>
<td>government production programs</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Results of these changes for watershed structures</th>
<th>Times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>increased row cropping</td>
<td>6</td>
</tr>
<tr>
<td>increased soil erosion</td>
<td>2</td>
</tr>
<tr>
<td>increased siltation of watershed structures</td>
<td>2</td>
</tr>
</tbody>
</table>

Summary

The consensus across respondents in Woodbury County is that maintenance of watershed structures is generally adequate. Non-farmers believe problems with maintenance usually reside with the farmers and their unwillingness to initiate good conservation practices or to take greater responsibility for maintenance of the structures. The farmers, however, provide a dissenting perspective. They believe they are constrained by economic considerations and SCS does not take their input seriously.

The major problem is what to do when major repair and replacement costs have to be met. The supervisors and the district commissioners believe the federal government created many of the problems with the structures. The government persuaded farmers to initially become involved in the program; the government imposed the conditions under which the program would operate; and government farm policies rewarded those who exploited the land, which caused much of the current concern about the viability of the structures.
Because of these factors, the supervisors and the commissioners believe the federal government should take responsibility for major repairs and for replacement.

Finally, Woodbury County respondents are generally accepting of the government's right to intervene to ensure proper use of the land. The farmers may not like it, and they may complain, but these same farmers can suggest no other viable alternative.

Summary

This section discusses key issues raised by the research questions and describes the similarities and differences which exist across the three counties. In general, there appear to be more similarities than differences. The issues are interrelated but are separated here for the purpose of discussion.

Obligations for maintenance

There is general agreement that the local conservation district has prime responsibility for maintenance of the structures. The definition of responsibility, however, differs between the district and SCS. The districts believe their responsibility extends primarily to routine maintenance items such as repairing the berm (the soil at water's edge), cutting weeds and brush, and patching holes. They believe SCS should have responsibility for expensive repairs, such as major washouts, collapsed chutes, major leaks, and for replacement of the structures. The districts believe they have inadequate resources for these maintenance and operation responsibilities. SCS disagrees with this conclusion. Its official position is that maintenance, including replacement, is a local responsibility, which should include the county boards of supervisors as well.

The county boards of supervisors, for their part, are satisfied with the current arrangements. They maintain road structures and let the districts and SCS maintain structures on private land. In two counties, Monona and Woodbury, the supervisors provide financial assistance to the district to help them carry out their maintenance responsibility. Budget constraints and political considerations prevent the supervisors from doing more. In addition, the supervisors do not feel bound by maintenance agreements that have been signed with the Soil Conservation Service sometime in the past. An opinion by the Iowa Attorney General concludes that a current county board is not encumbered by the decisions of a previous county board and hence is not obligated to provide maintenance
funds (Norby 1986). The supervisors, therefore, are more interested in negotiating informal local agreements that are in the best interests of the local actors, irrespective of federal mandates and agreements with federal agencies.

SCS, the district commissioners, and the supervisors would like the landowner to take more responsibility for routine maintenance. In Ida and Woodbury Counties, where farmers have paid into a long-term maintenance fund, there is more resistance from the farmers for assuming maintenance responsibilities. Since these farmers have paid for maintenance, they believe someone else should implement maintenance activities. In Monona County, where a one-time maintenance fee was paid, there may be more support from the landowners for taking greater maintenance responsibilities. However, long-time participants in the program counter they were told at the beginning of the program SCS would take care of maintenance and the farmer would not have to worry about it. Hence, these farmers are reluctant to assume maintenance responsibilities. New owners of structures in all three counties have received little if any information or direction about maintenance responsibilities.

During the past 40 years, the patterns of interaction between all actors have shaped and reinforced expectations for the maintenance of the watershed structures. Currently, the informal agreements and experiences of the local actors play a much greater role in allocating maintenance responsibilities than do the formal paper agreements that were signed in the past.

Linkages between actors

Ida County presents a unique example of continuity of relations and of a concerted effort among the supervisors, the conservation district, and SCS to work cooperatively. As a result, there is a greater focus and purpose to activities related to the watershed program in Ida County. By contrast, in Monona County where there is a long history of animosity between the supervisors, the conservation district, and SCS, the result is fear and suspicion. The commissioners are intimidated by the supervisors and have withdrawn contact. As a result, there is little cooperative effort to address issues of mutual concern. In Woodbury County, a rural-urban dichotomy has the supervisors focused primarily on urban concerns, and they leave watershed concerns to the Soil Conservation Service. They have hired someone to represent their interests and to assume their maintenance responsibilities. In this
way, the Woodbury supervisors are uninvolved in the actual deliberations and decision-making process related to the care and maintenance of the watershed structures.

In all counties, the farmer is accorded the role of scapegoat, both for initially destroying the land and then being reluctant to make changes necessary to correct soil erosion problems. As a result, relations are not always harmonious between farmers and SCS and the commissioners. Farmers look on outsiders with suspicion and with a certain amount of derision. For their part, farmers want to be accorded the respect they feel is their due.

Responsibilities for soil conservation

By general agreement, the landowner has prime responsibility for soil conservation. The issue is in defining conservation, responsibility, and the limits of that responsibility. Those interviewees who do not make their living from the land (the county boards of supervisors and SCS personnel) described the land in more poetic terms than the farmers. Farmers and commissioners who earn their livelihood from the land expressed a range of sentiments from the poetic to the pragmatic. Each farmer also described how he or she must resolve the need to use the land to make a profit and at the same time preserve the soil for future generations. No respondent had a clear answer for how best to do this.

County boards of supervisors are supportive of conservation until it begins to cost more money than they perceive the county can afford. Counties lack resources, and, most importantly, the supervisors are unwilling to face the political consequences of higher taxes. As a result, the supervisors believe funding for the watershed program should come primarily from the federal government. In this respect, they express a sentiment held by most of those interviewed throughout the region: payment for conservation is ultimately the business of the federal government. Local citizens can do their part, but it is a very small part in comparison to the responsibility accorded the federal government.

Private property and public intervention

There is no real consensus about who owns the structures. As a result, there is a range of opinion about the desirability of the federal government using private land for the public good. Those interviewed did agree that because the government built the structures, it has the right to ensure that the structures are used and maintained properly. Farmers did not express resentment at the government for maintaining the structures. Many, however, do
resent what they perceive to be an imposed obligation for them to assume maintenance responsibilities.

Farmers did express resentment about the increased intervention of the public telling them how to farm. At the same time, farmers recognized that society is more concerned about off-farm impacts of farming practices and that if farmers do not voluntarily change their practices, they will be forced to change by government regulations.

**Macro-influences**

There was general agreement that economic changes which were reinforced by government programs helped to concentrate production, increase farm size, and stimulate increased production of row crops. Together these factors were a major cause of increased soil erosion in the Little Sioux watershed and the faster-than-planned deterioration of many of the watershed structures. As a result of these changes, the local sponsors and landowners question how much maintenance and replacement responsibility should rightly be theirs. The structures were built to one set of economic and environmental conditions. When the conditions changed, the original assumptions were no longer valid.
CHAPTER VI
A GROUNDED THEORY OF POLICY IMPLEMENTATION

Implementation studies ask "Why did it happen this way?" (Van Meter and Van Horn 1975:448). The purpose of this dissertation is to derive a grounded theory of policy implementation that answers why the policy objectives of the Little Sioux Watershed project were not implemented as intended. Using the data presented in Chapters 4 and 5, this chapter develops a grounded theory to explain the implementation of the Little Sioux Watershed project. A more general theory is then derived to explain the implementation process in other situations where local sponsors are obligated to assume responsibility for federal programs. The chapter first addresses the question of what policy objectives were not achieved in the Little Sioux Watershed project.

Policy Objectives not Achieved

The legislation which created the Little Sioux Watershed project required that the operation and maintenance of the watershed structures must be the responsibility of a local sponsor (House Document No. 268, 78th Congress 1943:2). The designated local sponsor for the project was the soil conservation district in each county. For each watershed project, the district signed an agreement with the Soil Conservation Service stating that "the local soil conservation district will operate and maintain works of improvement installed under the work plan, through arrangements with individual landowners and with cooperating agencies" (Flood Prevention Operations Guide 1962:16). The district entered into agreements with boards of supervisors, the Iowa Highway Commission, and railroads that required these agencies to operate and maintain structures built on their right-of-ways. The district retained the responsibility to "maintain works of improvement installed on farmlands using funds provided by landowners in a subwatershed through recorded farmer-district agreements" (Flood Prevention Operations Guide 1962:17). Agreements between the district and individual landowners obligate the landowner to make payments to a maintenance fund which provided for the operation and maintenance of the watershed improvements installed in their subwatershed (Maintenance Agreement 1977). The agreement with a landowner did
not obligate the landowner to perform maintenance tasks. Farmers interviewed for this study indicated that requests for them to help with maintenance tasks were conveyed verbally.

Maintenance is defined by SCS as:

Work required to keep works of improvement in, or restore them to, their original physical and functional condition.

Maintenance includes performance of work and application of measures to prevent deterioration as well as restoring, rebuilding, replacing, and putting together parts that have been torn, broken or deteriorated (Operation and Maintenance Handbook 1971:1).

Specific maintenance functions include the following:

1. Reseed or resod and fertilize those areas that do not have an adequate stand of desirable vegetation where necessary, eroded areas must be restored before reseeding or resodding. This may require hand working and reshaping steep areas.

2. Cut or spray undesirable vegetation, trees and brush with approved herbicides.

3. Fertilize vegetation as required to maintain a vigorous stand.

4. Control grazing to insure proper vegetation growth.

5. Mow vegetation as needed to maintain optimum cover and for desired uses.

6. Repair areas of slides, slips, bulges, or excessive settlement on earth fills. Take action to eliminate causes of such deficiencies.

7. Replace eroded naturals from gutters, and other areas and reseed as needed.

8. Replace soil removed by rodents.

9. Restore concrete that has deteriorated.

10. Repair and replace concrete that has been displace, broken or otherwise damaged.

11. Remove and replace damaged rodent guard on the drain tile outlet.

12. Repaint all surfaces requiring protection by paint, as needed.

13. Repair or replace damaged or deteriorated guard rail components (Operation and Maintenance Agreement 1985).
Data from interviews with SCS personnel and with district commissioners indicate that SCS continues to repair separated concrete pipes and chutes, serious seepage on dams, undermined pipes or chutes, and serious bank erosion. The expectation at the local level is that SCS should continue to fix these kinds of problems. SCS personnel disagree. They are concerned that local sponsors have not assumed full responsibility for maintenance, and they are concerned that some maintenance task are not being done. These personnel cite the following examples to document their concern: dams overgrown with trees and brush, overgrazing, areas in need of reseeding, and pipes needing to be replaced.

The policy objectives, therefore, that have not been implemented as intended by the original legislation are:

1. local sponsors have not assumed control and responsibility for the operation and maintenance of the watershed structures as specified by the original legislation, and

2. maintenance tasks are not being completed as specified in the agreements between local sponsors and the Soil Conservation Service.

SCS continues to be more involved in the operation and maintenance of the watershed structures than it would like or believes it should in terms of the enabling legislation and of the implementing documents that describe the responsibilities of local sponsors and of SCS. A grounded theory will be derived to explain:

1. why local sponsors have not assumed full control of the operation and maintenance program, and

2. why the Soil Conservation Service continues to have a high level of involvement with the operation and maintenance of the watershed program.

Before discussing the theory, it should be noted that local sponsors believe they are adequately maintaining the watershed structures. Thus, the perspective assumed in this chapter is that of SCS, which believes the watershed structures are not adequately maintained. The local perspective will be integrated as part of the derived theory.
The Initial Theory - Woodbury County

As described in Chapter 3, the grounded theory will be developed by first reviewing the data from Woodbury County to derive an initial theory and then to refine the initial theory through comparisons with data from Ida and Monona counties.

Conrad (1978:102-103) describes the process as follows. As concepts emerge from the data or as data emerge that fit existing concepts, the researcher begins to describe the theoretical properties of the concept, its dimensions, its relationships to other concepts, and the conditions under which it is pronounced or minimized. The process involves returning to the original data as often as is necessary to bring closure to the theory. The further refinement of concepts and their interrelationships gradually leads to the development of theory.

The initial analysis of Woodbury County's data yielded seven concepts to explain why the original policy requiring local responsibility for the operation and maintenance of the watershed structures was not successfully implemented. The concepts are: disparity of objectives, entanglement, false expectations, locus of ownership, non-adaptation, non-institutionalization, and use of private property. The derivation and explanation of each concept follows.

Disparity of objectives

Disparity of objectives refers to the differing perspectives local residents and SCS have regarding why the structures were originally built and their continuing importance in the area.

The watershed structures were built to control flooding and to reduce soil erosion in the Little Sioux Watershed (House Document No. 268, 78th Congress 1943). In the opinion of many long-time area residents interviewed for this study, had the severe gullying and erosion been allowed to continue and the structures not been built, the area would be uninhabitable today. Thus, the initial concern for local residents was to preserve the area as a place to live and to work. Once completed, the structures performed as intended, eliminating major problems with flooding and severe erosion. In the words of one long-time resident and farmer:
The structures saved the land in this part of Iowa. There used to be a tremendous amount of mud that would flow when it rained. Now there is none. There would have been nothing left in this part of the country if nothing had been done.

With this objective achieved, however, farmers and other area residents have become less concerned about the structures and their continuing viability. Six of the eight landowners said that because the structures continue to control flooding, they do not worry or think much about them. Maintenance issues are thus not a concern for them. The structures have performed well over the years, even when nearly filled with silt, and these farmers see no reason why the structures cannot continue to protect the area.

SCS personnel, on the other hand, understand the value of the structures in a more general sense. For them, the structures represent a commitment to saving soil. SCS built these structures as part of their organizational commitment to prevent soil erosion. Local SCS personnel describe the structures in engineering terms, and they are well aware of the problems that can result from improper care.

Personal values interact with and reinforce professional values to solidify a commitment to soil conservation as an end in itself. One SCS official was described by a landowner as "being married to soil conservation." When asked to talk about what land means to them and what their responsibilities are to it, SCS personnel indicated a strong stewardship ethic to preserve and take care of the land. Their stewardship ethic is more pronounced than for many of the farmers in Woodbury County who described land in more functional terms. One a 10 point scale measuring perceptions of land with 1 being land merely as an input of commodity production and 10 being land as a living organism, SCS personnel averaged 9.3 while farmers averaged 7.8.

A strong organizational and personal commitment to the watershed program sustains SCS's involvement with the projects to ensure that the structures are maintained properly and that the structures will continue to protect the land. In contrast, local residents see the structures as fulfilling a function. Since the function is being met, there is little sustaining interest in the structures. As a result, landowners are content to let SCS or the district maintain the structures.

Entanglement

Entanglement refers to SCS's continuing involvement with the local sponsor compromising its ability to assume independent decision-making. For the purpose of this
analysis, independence refers to the ability to make and implement decisions without recourse to another agency for authority or resources. Entanglement has meant that the conservation district has been unable to establish itself as an independent entity, and that SCS has been unable to remove itself from the watershed program.

SCS has assumed responsibility for correcting problems in watershed structures when the problems are caused by a design deficiency. Because design deficiency criteria change as new design techniques and technologies are adopted, SCS has continually helped maintain the structures since shortly after the program began. Because the district did not have to pay for these repairs, it has been a willing participant in this arrangement.

The perception by landowners is that SCS is the dominant organization. Initial maintenance instructions were provided by SCS to two landowners, and five of the eight landowners indicated that SCS establishes priority for watershed maintenance activities. Two of the five believe SCS should establish maintenance priorities. In the words of one farmer: "The district is just a formality. If you want to get something done, you go to SCS."

As described by one SCS official, when funds were available, SCS was willing to perform maintenance tasks because it wanted to "get the job done and to do it right." However, as funds have become less available and problems more numerous, SCS is less willing to provide maintenance. The district, however, has not gained the independence and control of resources it would need to completely assume this responsibility. Three of the four experienced commissioners (The fifth was just recently elected.) indicated that funding is a major concern for them.

The district lacks an independent source of funds. The conservation district was formed at the request of the federal government to act as local representative for soil conservation programs. Because it has no taxing authority, it must depend on other government entities for the resources needed to carry out mandated programs. The district does have a maintenance fund, but it is not adequate for major expenses. A related factor is the extent of control the district has over its funds. Some commissioners and several farmers in Woodbury County expressed the opinion that the commissioners do not always have the decision-making power they should in spending district money. Their perception is that SCS makes the decisions and then informs the district about the action it has taken. One commissioner described interaction between the district and SCS as "a colonial
relationship." Such action, or the belief that such action exists, serves to reinforce the perception and/or the reality of dependency.

SCS's continuing involvement with the maintenance program is also a function of its mandate to represent the public interest in matters of soil conservation. As described by one member of the board of supervisors and confirmed by five of eight farmers, the federal government needs to be involved in conservation issues to mediate between conflicting interests and to support conservation concerns. This responsibility and expectation makes it difficult for SCS not to ensure that the maintenance of the structures is adequate.

SCS is a formal organization and thus has its own office, technical and support staff, support vehicles, and necessary equipment to help it carry out its tasks. The district has only a state clerk to provide staff support, and she works out of the SCS office. For supplies and equipment and for management and technical support, the district must go to SCS. The Little Sioux area does not provide an adequate resource base to support the technical and organizational needs of the district. As a result, SCS and the district are inexorably bound together, and SCS is over-responsible for the affairs of the district.

False expectations

False expectations describe the promises made by SCS to landowners and to the district that, in contrast to the intent of the enabling legislation, SCS would assume major responsibility for maintenance.

An SCS official described how farmers were approached about the watershed program. He said: "SCS made a lot of promises to get things started. People got it for nothing, and they want to keep getting it for nothing." The expectation was conveyed by SCS in the beginning of the program that it would help maintain the watershed structures. This perception was confirmed by two other local SCS personnel and by three of the eight farmers. Farmers who were reluctant to commit to the program were assured by SCS that they would have no worries; SCS would take care of everything. On that basis, many farmers agreed to participate in the program. However, the expectation was set for many farmers that maintenance was not their responsibility. As a result, they have been more than willing to have someone else perform maintenance tasks. They themselves have a minimum commitment.

As described by one commissioner: "The rules were changed in the middle of the game" and SCS began to require the district and landowners to perform maintenance
responsibilities specified in the legislation and project agreements. As a result, many landowners and commissioners feel misled, and they have not been cooperative.

SCS's willingness to repair design deficiency problems reinforced the perception that it would assume responsibility for most maintenance obligations.

Locus of ownership

Locus of ownership refers to the perception by landowners that because the government paid to construct the dams, the structures belong to the government along with the responsibility to maintain them.

Five of eight landowners believe they do not own the watershed structures on their land. SCS and the district are attempting to change this perception for structures built more recently. They are getting more cooperation and better understanding now, but there is little change in landowners' perceptions for those structures built early in the program.

For many landowners, the perception of non-ownership and hence non-responsibility is reinforced by paying into the maintenance fund. Two landowners indicated that because they pay a maintenance fee, they should have no maintenance responsibility. From their perspective, their payment absolves them of any significant maintenance responsibility. Some farmers are willing to help, just to be helpful, but the prime responsibility resides with SCS and/or the district.

Again, this perception has been reinforced by SCS's continuing involvement with the watershed program to provide maintenance for design deficiencies.

Non-adaptation

The formal interpretation of who has maintenance responsibility for the watershed structures has remained constant. Non-adaptation, therefore, refers to the constancy of the policy's formal interpretation even as the conditions which gave rise to the original policy changed. The social, economic, and environmental conditions which shaped the content of the original policy changed significantly over the 40 year life of the project. The formal policy, however, did not. As a result, local sponsors believe they are justified in changing their interpretation of the policy to fit the new realities.

The structures were built to last 50 years. The design of the structures assumed that most of the land would be in grass and that row crops would be minimal. When changing economic conditions favored the plowing of grassland to plant row crops, silt runoff
increased significantly, particularly if there was inadequate land treatment. As a result, the structures collected silt at a much faster rate than planned. Several structures are already filled or nearly so.

Commissioners and landowners believe the production policies of government farm programs stimulated much of the increased cultivation of the land. Government actions thus served to undermine the district's efforts to promote conservation and to protect the structures. Four commissioners believe that because government policy hastened the deterioration of the structures, the district is absolved of at least some of their maintenance responsibilities. Many landowners agree with this conclusion. A comment made by four of the eight landowners was that government policy forced the deterioration of the structures; thus the government should fix them.

Local SCS personnel generally agree with this explanation for the rapid deterioration of the watershed structures.

The reluctance to change also impacts the maintenance fee structure and collection process. The revenue generating capability of the commissioners has not changed to keep pace with their increased financial needs. New funding mechanisms have been created at the state level enabling organized watersheds to tax themselves for maintenance purposes (Code of Iowa 1987), but no Little Sioux area watershed has adopted this procedure. Landowners do not want to pay higher taxes, and, since seven of those interviewed believe maintenance is the federal government's responsibility, they have little incentive to support a tax increase. Because landowners are content with the current practice, commissioners are reluctant to make changes.

Non-institutionalization

Non-institutionalization refers to the non-standardization at the local level of operating procedures and responsibilities. Non-institutionalization has affected the local sponsors, landowners, and SCS. As a result, continuity in the program has been compromised. The lack of standard operating procedures is partly the result of the dependent relationship between the district and SCS and the consequent inability of the district to establish itself as an independent entity.

One manifestation of non-institutionalization is a lack of consensus about what to do with structures needing to be replaced either because of age or because they are filled with
silt. The district and SCS each looks to the other to take responsibility for a decision and the consequent action. In the mean time, needed action is not being taken.

Neither SCS nor the district have established themselves as distinct agencies with many farmers. Farmers know individuals who answer their questions or solve their problems, but they are uncertain with which agency these individuals are associated. Thus individuals sometimes represent their own perspective and not that of the agency they represent. As a result, clients have varying experiences with receiving assistance. The agency may over- or undercommit its resources leaving one client with more help than he/she should have and another with less.

Lack of training for the commissioners contributes to the non-standardization of procedures. Commissioners learn their responsibilities on the job from veteran commissioners. Thus, the quality and consistency of training is not maintained. Socialization is an informal process with little control over what commissioners are or are not learning. There is also a lack of training for landowners. Only two indicated receiving initial instruction for performing maintenance activities. No landowner indicated receiving any continued training or support.

Use of private property

The final concept refers to the landowners' belief that their land is theirs to use as they like and that the government ultimately does not have the right to tell them how to use it.

This perception was best stated by one farmer who said: "Farmers have the right to use the land as they see fit, even if they do not exercise that right appropriately." As an example, one farmer said that he needed the pond created by the structure on his land to water his cattle. Regardless of what SCS or the district said, he would use it for that purpose. Other farmers indicated they believe SCS is too restrictive in how it permits land around the structures to be used.

The priority most farmers give to economic considerations when making farm management decisions is an indication of farmers' belief that land is primarily an economic input to be managed to maximize returns. Five of the eight farmers indicated that while conservation is important, they still must make money and hence conservation is for them secondary to profits.
With regard to the structures, farmers will tolerate them if they do not substantially affect farmers' profits. When profits are compromised, farmers will take what remedial action is needed to maintain the profitability of their farming enterprise. If the action compromises the viability of a structure, it is of little concern to farmers. Minimal concern is made easier by the perception that the structures primarily belong to the government and that someone other than the farmer is responsible for maintaining the structures.

Data from Ida and Monona County will next be examined before presenting the final discussion of the theory.

Ida County

The implementation of the watershed program in Ida County was similar to Woodbury County. No new information was learned from the Ida County data that would significantly alter the conclusions resulting from the analysis of Woodbury County data.

As in Woodbury County, the majority of Ida County landowners believe that maintenance of the watershed structures is primarily the responsibility of the soil conservation district or of the Soil Conservation Service. Hence, landowners' willingness to assume anything but routine maintenance tasks is minimal. Two landowners indicated they were unwilling to accept even minimal responsibility. Reinforcing this position is the belief that the structures belong to the government, and the government should thus take responsibility to maintain them. Landowners were willing to participate in the program because it would solve gully problems on their land. Once this problem was solved, the structures and the problems they were built to solve, faded in importance. Maintenance of the watershed structures is a low priority for most farmer respondents. Finally, Ida County landowners believe they retain the right to use their land as a production input to maximize their profits. Five farmers recognize they must farm responsibly, but profits must come before conservation.

The importance of the initial expectation concept is reinforced by the fact that five farmers did remember being told by SCS that they would have maintenance responsibilities. These farmers indicated a greater willingness to assume some of the maintenance responsibilities than those who had no similar recollection.

The Ida County conservation district, like the Woodbury County district, was not able to establish itself as an independent agency in terms of controlling its decision-making
and resources, and it remains dependent on SCS for technical and management assistance.

SCS is perceived as the dominant agency. Five of seven landowners believe SCS does and should establish maintenance priorities. All five commissioners believe SCS will need to fund major repairs or replacement of structures. The board of supervisors, also, believe SCS should fund major maintenance expenses. The supervisors are unwilling to provide county funds for maintenance of structures on private land.

The good working relationships that exist between the board of supervisors, SCS, and the district commissioners make for a positive work environment, but the basic expectations and dependencies remain unchanged.

The commissioners are very aware that increased soil erosion is a result of economic conditions and government programs which favored maximum production of row crops. Though the problem has not been as serious as in Woodbury County, because of the relative newness of the structures and a greater emphasis on adequate land treatment, the commissioners are well aware that they face serious problems in the future. All five commissioners believe the responsibility for maintenance should be changed to reflect this changed external reality.

SCS remains responsible for some maintenance obligations of the district relative to the watershed program. SCS has assumed this responsibility because its organizational mandate is to solve soil erosion problems and because no viable alternative agency exists to provide the management and technical assistance needed by the district. SCS's willingness to repair design deficiencies set the expectation early in the program that local sponsors would not be responsible for all maintenance problems. As such, the district let SCS perform as many maintenance tasks as it was willing, which served to reinforce the original expectation.

In summary, though the formal policy has not changed, the implementation of the watershed program in Ida County has been changed by the local actors to fit local conditions and local perceptions of responsibilities to the mandates of the program. Local sponsors do not have the level of responsibility envisioned by the original legislation.

Monona County

The basic trends evident in Woodbury and Ida Counties are present in Monona County as well. A discussion of these trends will not be repeated here. A new concept
which emerged from the Monona County data and which has a significant impact on the implementation of the watershed program will be discussed instead.

In all counties, a reliable or stable source of finances is an important issue to the district commissioners. In Monona County, however, it is a paramount issue as a perceived lack of adequate funds paralyzes the commissioners, often preventing them from needed action. Hence, the additional concept to be adopted for this study is: perceived financial security.

Perceived financial security is the confidence, real or imagined, that adequate funding will be available to cover anticipated expenditures.

In Monona County, maintenance for the watershed structures was initially funded by the board of supervisors (Lamp 1948). As a result, a minimal financial commitment was required from farmers who participated in the program. In the first few years of the program, this was an adequate source of funds. However, the State Comptroller challenged the legality of the method used by the supervisors to raise and spend maintenance funds. As a result, the supervisors stopped raising maintenance funds through a tax levy.

A second attempt was made to generate maintenance funds by tax levy. The Code of Iowa permits counties to impose a 1/4 mill levy on all agricultural land for the purpose of maintaining watershed structures. When the Monona County supervisors levied this tax, the wording of the law was successfully challenged in court and so again the county stopped taxing county residents for maintenance expenses. Instead, the supervisors agreed to use state funds to make an annual contribution to the district to help with maintenance expenses. The amount of the contribution is comparable to what would be raised through the 1/4 mill levy. The supervisors have made an annual contribution for the past several years.

The division between hill people and lowland people provided added incentive for the supervisors not to use county funds for the maintenance of upland watershed structures. As well, a long history of poor relationships between the board, the district, and SCS exacerbated differences and made it more difficult to resolve common issues. Currently the supervisors and the commissioners communicate only by mail.

The commissioners have a relatively small amount of funds available to them from the initial contributions of farmers. In addition, they are uncertain about the continuing support of the board of supervisors. These realities, coupled with the history of uncertainty about maintenance funds, has made the commissioners reluctant to spend money for maintenance. Four Monona commissioners said they prorate maintenance expenses. Other
districts, by contrast, are relatively comfortable with their financial position. The commissioners perceive they have adequate funding for the maintenance tasks for which they believe they are responsible. All the commissioners recognize they cannot finance major repairs and replacements, but they do not perceive this as their responsibility and so are less concerned. In Monona County, however, the commissioners are uncertain if they even have adequate funds for those responsibilities they have assumed.

Hence, the concept of perceived financial security is an important dimension in trying to understand why local sponsors have not assumed more control of the implementation of the watershed program. To the extent that local sponsors perceive their funds to be adequate for maintenance, to that extent are they willing to spend within those limits. When this is not the case, when a district perceives it has inadequate funds, it will curtail spending, even for maintenance which objectively it should be able to complete. The concept also explains why districts limit their sense of responsibility for maintenance. The extent of their responsibility is bounded by the perceived availability of funds. All districts believe they have inadequate funds for major items, hence the perceived limit of their responsibility stops at that point.

The perceived financial security also has relevance for the other actors. The supervisors are reluctant to over-commit themselves to fund maintenance because they do not want to raise taxes, or compromise the financial integrity of the county by spending money they do not have. Landowners place financial integrity above other considerations. Most are willing to cooperate only to the point they perceive their cooperation will be a financial burden. And finally, SCS is bounded by its perception of financial security. When funds were adequate, several local SCS personnel indicated the agency was willing to spend for maintenance tasks. Now that funds are scarce, it wants to limit its obligations and invoke the original understandings.

Another concept raised by the Monona County data is the quality of working relationships between actors. In Monona County they are poor. The supervisors and the commissioners no longer have personal contacts and a degree of animosity exist between the two groups, and the supervisors and SCS personnel seldom meet. In the other two counties, relations are adequate to excellent. In Ida County, the three main sets of actors meet annually to conduct business, and in Woodbury County, while there is little formal contact between the commissioners and the supervisors there is little animosity. The commissioners and SCS working relationship is acceptable.
The conclusion of this research is that, while important, the quality of the working relationships between actors at the local level is not critical to the issue of local control. It is a variable that operates in the background to influence other variables. In Monona County, the poor working relationship between the commissioners and the supervisors exacerbates the commissioners' sense of financial insecurity. Yet the supervisors continue to support the maintenance program. By contrast, in Ida County, the commissioners and the supervisors have an excellent working relationship. Yet the supervisors provide no financial support for the commissioners' maintenance responsibilities.

The Grounded Theory of Policy Failure in the Little Sioux Watershed

The concepts derived from the data of Woodbury, Ida, and Monona Counties interact in the following way to explain why local sponsors have not assumed full responsibility for the operation and maintenance of the Little Sioux watershed structures.

Local control and initiative were compromised from the beginning of the program. SCS's initial promises that it would maintain the watershed structures coupled with its subsequent repair of design deficiency problems set patterns of expectations that formed landowners' and commissioners' perceptions for who had ultimate responsibility to maintain the watershed structures. Because each actor's needs were being met, none raised serious objections to these arrangements. Landowners had gullies repaired and flooding stopped; the districts did not have to expend extra funds; boards of supervisors did not have to pay for maintenance and were able to have road structures build; and SCS fulfilled its mission of preventing soil erosion. Few landowners developed a strong sense of ownership and responsibility for the structures, and the counties were able to benefit from increased erosion control without having to pay for it.

Because of an inadequate resource and skill base, the districts were unable to establish themselves as independent agencies with regard to control of decision-making and resources. Each district was dependent on SCS for the knowledge and resources it needed to carry out its mandate to operate and maintain the watershed structures. Because its input was needed by the district for maintenance, SCS was unable to remove itself from the operation and maintenance program. In addition, SCS overtly assumed responsibility for some maintenance functions. This motivated the district to have SCS complete as many maintenance tasks as it was willing to assume. By taking responsibility for maintenance,
SCS obscured the distinction between itself and the district. As a result, the extent of each agency's authority and responsibility for maintenance is now ambiguous.

As maintenance funds became scarce relative to perceived need, each district redefined its domain of responsibility for maintenance to fit available funding. The expectation was that SCS would assume responsibility for the difference. For political reasons, the boards of supervisors were reluctant to increase their financial support of the maintenance program.

Macro-economic factors radically changed farming practices which significantly increased soil erosion and applied additional pressure on the watershed structures. Farmers believed the land was theirs to make a profit. What impact their behavior might have on increasing soil erosion and shortening the expected life of the watershed structures was a secondary concern to most farmers. The more rapid deterioration of the structures exacerbated weaknesses in the relationships and applied increased pressure on all actors to assume greater maintenance responsibilities as funds became increasingly scarce.

As the original conditions and assumptions changed, so too did people's commitment and willingness to assume responsibility for the program. When the watershed program began, local people may have been willing to assume responsibility for the operation and maintenance of the structures when the potential problems seemed manageable. Time and circumstances changed the gravity of real and potential problems with the structures. In response to these changes, local actors became less willing to assume the responsibilities originally specified in the policy. The assumptions and conditions which guided the development of the original policy changed, but the expectations of the formal policy did not change. As a result, local actors remade the policy to better suit their needs.

The General Derived Theory

Data from the Little Sioux Watershed project are used as the basis for a grounded theory of policy implementation to explain why local actors fail to implement policy objectives as specified in the original policy. The concepts described above provide the core of the theory. Grounded theory may be presented in either a series of propositions or in discussion form (Glaser and Strauss 1967:31). The theory for this study is presented in discussion format.
1. It is frequently the policy of the federal government to initiate programs at the local level with the stipulation that a local sponsor will assume responsibility for the program once the start-up phase is complete. This requirement is part of the legislation that authorizes the program. The assumption is that once its obligation is completed, the federal government will no longer have either financial or management responsibility for the program, but that it will be the responsibility of the local sponsor to continue the program as described in the original mandate. Often a local sponsor does not assume the responsibility as intended and the government must either assume responsibility for the program to ensure that social goals are maintained or let the local sponsor redefine the policy to focus primarily on local objectives.

2. To promote the objectives of the program, the government and local actors enter into agreements to work cooperatively. The respective parties to the agreement, however, may in fact be working toward different objectives. Local actors are primarily interested in solving immediate problems. They are less concerned with broad societal concerns. Government actors and programs, however, seek to promote the general good, which sometimes conflicts with local concerns or call for sacrifices which local residents are unwilling to make. The disparity between local concerns and general societal concerns can generate contradictions which may undermine the original intent of the program.

3. In the initial stages of a program, the federal government is the dominant actor. It controls resources; it can influence decisions about who will benefit from the program, and it can create expectations for the long-term implementation of the program. The government can use its power to induce participation from otherwise reluctant participants. Benefits and promises outside the normal expectations of the program can be given to benefactors. When a local sponsor assumes responsibility for the program, it also inherits the promises and false expectations. If these expectations are contrary to what is needed for the local sponsor to effectively carry out its responsibilities, they will serve as a barrier to effective implementation.

4. If the local sponsor has inadequate finances, personnel, technical and management expertise, authority, and equipment needed to carry out the responsibilities of the policy mandate, its operating procedures, relationships, and expectations will not be institutionalized and the agency may fail to establish itself as an independent entity. As a result, it will remain overly dependent on the agency or agencies which dispense the needed resources.
The perceived lack of adequate funds is critical. A local agency will assume only as much responsibility as it perceives it can adequately finance. Available finances tend to define the responsibility domain rather than the dictates of the policy.

5. The federal agency which dispenses resources and the local sponsor which receives them can develop a mutually dependent relationship which curtails the freedom and independence of both the local sponsor and the federal agency. The local sponsor needs technical and financial resources from the federal agency, and the federal agency needs the local sponsor to give it legitimacy at the local level. The mutually dependent relationship is debilitating for both agencies.

6. The external conditions that influenced the rationale for the original policy and shaped its development change over time. If the policy maker's understanding and interpretation of the policy does not accommodate these changes, the local sponsor will reinterpret its responsibilities in light of the changed external reality to best meet its needs and resources.

7. Local actors who fail to develop a sense of ownership for the project or program will be less likely to support local initiatives to assume control and responsibility. If the perception remains that the program objectives are primarily the government's responsibility, local actors will support the government's continuing involvement.

8. If the successful implementation of a policy in some way depends on compromising or challenging a fundamental tenet of our society, such as freedom to use private land to maximize personal gain, the shape and direction of the policy will be changed to accommodate the societal value rather than the value changing to accommodate the policy. Fundamental societal values thus provide a boundary within which the policy may be implemented, irrespective of the actual content of the legislation.

Discussion

Policies which require the control of a local sponsor for success but which fail to address the above conditions will generally fail to achieve the objective of local control. Within such an environment, local actors will reshape policy objectives to serve local interests and needs. This in turn will apply greater pressure on the government to maintain or increase its involvement with the program to assure that the program's common good is achieved and that what has already been accomplished will not be compromised. This reaction further diminishes local autonomy and impedes local willingness or ability to assume
responsibility. At the same time, because it is to the advantage of the local sponsor to have someone else do its job, it is a willing accomplice.

Hence, the real relation is what is arranged at the local level. What is on paper is of little consequence. The formal document is primarily a means to obtain money or support. The paper itself imposes no strong sense of obligation (Berman 1978:177, Hill 1981:211, Van Meter and Van Horn 1975: 177). This is particularly true when the federal agency is perceived to be inconsistent in its enforcement of the regulations governing the program. In addition, local actors are well aware that many federal policies support special interests and thus operate at cross-purpose to one another. All respondents in this study, for example, spoke of the inherent contradiction between SCS's conservation policies and ASCS's (Agricultural Stabilization and Conservation Service) production policies. Local actors, also, are aware that the federal government readily changes policy directives to accommodate political considerations. Public decision-making is driven by self-interest politics and the realization of short-term goals (Fudge and Barrett 1981:285). Because local actors are a part of this same environment, they are motivated to operate in a similar fashion (Booth 1979).

Local problems are increasingly the result of factors that local citizens cannot control (Krannich and Humphrey 1983:76, Summers and Branch 1984:159). As a result, local officials regularly petition the federal government to help solve their problems (Scharpf 1977:340). Federal agencies cultivate requests for assistance because their organizational character is defined through their activity (Selznick 1949:259), and their survival as an agency is dependent on their ability to consistently mobilize resources to implement programs and projects. Dominant societal values of equality and democracy, however, demand that local participants be involved in the working out of projects conducted jointly by federal and local agencies. Hence, many federal programs are designed to foster local participation and to build local capacity for solving problems. The involvement of the federal government in this process, however, may work against building local capacity and achieving local control.

An overbearing federal presence can mitigate against local actors obtaining the expertise and resources they need to assume responsibility for a program. In addition, federal administrators may co-opt local sponsors by retaining control of a program to serve agency objectives (Selznick 1949:261). And local actors may be willing accomplices in allowing the federal agency to control the change process. Federal agencies provide needed resources enabling local resources to be used for other needs, and government intervention
may absolve local actors from the effort and responsibility needed to solve problems. The end result is that local control and responsibility is not achieved.

The availability of federal support to resolve local problems may act as a disincentive for local actors to solve these problems. Thus, many federal programs contain within them the seeds of their own destruction. These programs are designed to support local responsibility, yet they create dependence on federal resources and solutions which diminish local initiatives and capacity building.

The derived theory provides an explanation for this process in the Little Sioux watershed. Local sponsors will implement federal policy initiatives in ways which are consistent with their expectations of government behavior, the extent of local resources, their dominant values, and their perceptions for survival in a competitive economy. The following chapter will discuss the applicability of the theory to other situations.
CHAPTER VII

COMPARISONS WITH IMPLEMENTATION THEORIES AND LITERATURE

This research has examined the question of why local sponsors of federal projects may not assume the degree of control and responsibility mandated to them by the program's enabling legislation. Data from the Little Sioux Watershed project in Western Iowa has been used to derive a grounded theory explaining why local sponsors redefined policy objectives to conform to local perceptions of need and resources and thus did not assume the degree of responsibility envisioned by the legislation. A general theory of policy implementation was then derived from the implementation experience of the Little Sioux Watershed program to explain the policy implementation process in similar situations. The relation of these findings to other theories and discussions of policy implementation is the subject of this chapter.

The chapter begins with a brief summary of the grounded theory.

A Summary of the Grounded Theory

In the Little Sioux watershed, local sponsors have been given the responsibility to operate, maintain, and replace watershed structures built by the Little Sioux Watershed program. The local sponsor, the soil conservation districts, and the policy-making agency, the Soil Conservation Service, are linked by project agreements which describe for each project the work to be accomplished and the mutual responsibilities of each party to the agreement. When the project is completed, the local district sends a letter to SCS indicating it accepts the completed structures and the responsibility to operate and maintain them. A current inventory of the project structures indicates varying awareness, understanding, or interpretation of expectations between SCS and the local soil conservation districts for maintenance of the structures (Joint Agreement 1988). Over time, the codified agreement of local responsibility for maintenance has eroded to the point where now, at least from the perspective of SCS, many structures are inadequately maintained, threatening the continued integrity of the program.

Eight concepts were derived from the implementation experience of the Little Sioux watershed program to generally explain the failure of local sponsors to assume responsibility
for federal projects. The concepts are: disparity of objectives, entanglement, false expectations, locus of ownership, non-adaptation, non-institutionalization, use of private property (immutability of dominant societal values), and perceived financial security. The concepts interact in the following way.

The agency that initiates a policy and the local sponsors who implement that policy may have different objectives that over the long-term impede the implementation of the policy intended by the sponsoring legislation. Federal and local interests may mesh initially, but over time, as the immediate problem is solved and local actors become absorbed in other interests and concerns, federal and local interests may diverge. Because the more global concerns of the initiating agency remain constant, its commitment to the policy objectives is unlikely to change, which may set it in opposition to the local sponsor. In the Little Sioux area, local interest was focused initially on stopping gully erosion and flooding. Once this goal was achieved, by building grade and water control structures, landowner interest in the structures declined. SCS, on the other hand, remained committed to its mission of preventing soil erosion and committed to preserving the integrity of the structures as one means to carry out this mission.

The federal government's initial intervention to support a program can compromise local control. By making false promises and by initially assuming local responsibilities, a federal agency can create false expectations for its continued involvement. Once established, expectations are difficult to change. In the Little Sioux, SCS indicated that it would maintain the watershed structures and did assume maintenance responsibilities related to repairing design deficiencies problems. As a result, local sponsors and landowners, expecting continued government assistance and responsibility, were unwilling to accept full responsibility for the structures' maintenance.

An inadequate resource base makes it difficult, if not impossible, for a local sponsor to establish itself as an independent entity capable of carrying out policy mandates. The need for resources and technical assistance can enmesh the local sponsor with the initiating agency compromising the sponsor's ability to establish its independence and legitimacy.

The Little Sioux watershed does not provide sufficient population to support independent soil conservation districts. In addition, the legislation which established the soil conservation districts envisioned a close working relationship between the districts and SCS. The districts' dependence on SCS for support compromised their ability to act independently. At the same time, SCS's over-responsibility for the districts' obligations
compromised its ability to use its resources for other needs. The lack of guidelines defining each agency's authority and responsibility and the absence of established procedures to teach these guidelines to new generations of commissioners and landowners exacerbates the entanglement between the two agencies.

If local sponsors and citizens develop little sense of ownership for the program, they will be reluctant to assume responsibility for it. In the Little Sioux area, for example, many landowners believe the structures belong to the government and thus they accept minimal responsibility to care for them.

If the successful implementation of a policy requires the change or modification of a fundamental value of our society, for example, the right to use land as a private good, local behavior will follow the dictates of the value rather than of the policy. In the Little Sioux area, individual landowners retain the right to use their land as they please even though in the aggregate their land use practices impair the viability of the structures.

In summary, local sponsors and actors will redefine their responsibilities for a program to be consistent with their expectations of government behavior, their available resources, their dominant values, and their perceptions for survival in a competitive economy.

Comparisons with Other Implementation Theory and Literature

The theory described above provides an explanation for why local sponsors of federal programs might not assume the degree of responsibility expected by the federal agency. The following section discusses these findings and the contributions of the grounded theory in relation to extant policy implementation theory and literature.

Fudge and Barrett (1981:252) suggest three areas that are key to understanding the implementation process. They are: linkages between agencies, interaction and negotiation, and perception and values. In addition to these factors, the present study suggest two other areas that are important when considering policy implementation. The two additional areas are: adequacy of resources, and the external environment as a catalyst for change. These five issues will be used as a framework to discuss the grounded theory in relation to other implementation theory and literature.
Linkages between agencies

How agencies and individuals interact for the purpose of implementing policy is of fundamental importance for explaining policy outcomes. Generally, the examination of policy implementation assumes a hierarchic relationship between the policy-making agency and the implementing body. Policy outcomes are measured in tangible products which document the policy's success or lack thereof. Problems with implementation are resolved through better control and communication. As discussed previously, this approach assumes a static world controlled from the top-down by government officials who impose policy directives and assume they will be carried out. The approach taken by this research assumes the contrary. Specifically, the research assumes it is a fluid, dynamic world wherein actors negotiate to define reality to best meet current needs. As time and circumstance change those needs, a new order is negotiated and new alliances form. Hence, to understand policy implementation, one must examine and understand how agencies interact over time for the purpose of implementation.

The reality of changing linkages draws attention to the importance of examining this relationship as a unit of analysis in addition to examining each implementing agency separately. Hjern and Porter (1981) have developed the concept of implementation structures to explain such linkages.

They define implementation structure as "bundles of program related activities and parts of organizations" (Hjern and Porter 1981:211). The important aspect is not the formal description of how organizations relate to one another for the purpose of implementing policy or programs but the informal structure that actually shapes the implementation process. Implementation structures are formed for the purpose of resource exchange or to share in power (Fudge and Barrett 1981:256). An assumption of this perspective is that implementation structures are voluntarily joined to obtain benefits for the mutual self-interest of the con-joining agencies.

Discussion of implementation structures in the literature does not include examples of agencies forced to interact by legislative fiat. The legislation creating the soil conservation districts functionally joined SCS and the district under the assumption that it would be mutually advantageous to do so. The concepts of entanglement and non-institutionalization derived from the examination of the Little Sioux watershed suggest otherwise.

When the policy objective is a concrete task, the creation of an implementation structure may facilitate its achievement by combining resources and skills from two or more
agencies. In such an instance, the implementation structure is an effective means to some end. Once the goal has been achieved, the joined agencies are free to establish new relationships in response to new needs and circumstances.

When the policy objective, however, is the assumption of local responsibility and control, a task which requires clear authority, independence of decision-making, and control of resources, an implementation structure may be debilitating because it impedes the ability of the local sponsor to exercise those functions needed to actually assume control and responsibility. In addition, if the implementation structure cannot be dissolved, the local sponsor is forced to remain in a relationship which compromises its independence and decision-making authority. And there is little motivation for these agencies to institutionalize the authority and responsibility aspects of their relationship.

In a competitive environment, agencies will freely join with other agencies. Hence, each agency needs to maintain a high quality of service to one another to "keep" the other in the relationship. In a forced relationship, the respective agencies cannot not work together. Thus, there is little need to formalize their interactions or to strive for quality of mutual service.

The concept of entanglement in the grounded theory describes a condition that prevents a local sponsor from achieving the independence needed to assume responsibility and control for federal programs. In the Little Sioux, the conservation districts were tied to SCS for the purpose of maintaining the watershed structures. The relationship with SCS precluded the districts from forming alliances with other agencies which might have strengthened them and which might been more supportive of local control. The non-institutionalization of policy, procedures, and training tends to reinforce the mutual dependence of the two agencies.

Implementation structure provides a useful unit of analysis. However, the present research suggests that for the purpose of implementing policy, they are most effective when formed spontaneously and for the calculating reasons of the joining agencies.

In the grounded theory, linkages between agencies define formal relationships and mutual expectations. However, the theory also acknowledges the importance of the meta-consequences of these relationships by drawing attention to the costs to each agency resulting from the relationship and how the relationship creates a new reality. Unequal access to resources compromises the independence of each agency. The agency which is poorer in tangible resources is unable to establish itself as an independent entity, yet it retains
power over the resource rich agency by being able to call on it for needed inputs. Because the latter must respond to prevent the receiving agency from failing, it too is locked in a dependent relationship that compromises its integrity as an independent entity and limits the availability of its resources for other needs. The relationship can also create a new reality of responsibility and expectations. By assuming some elements of the local sponsor's responsibility, the government agency creates the expectation that it now has that responsibility, which becomes part of the new reality.

**Negotiation**

Implementation literature suggests that the ability to control policy execution or to ensure compliance with policy objectives is a major factor in determining the success or failure of a policy (Fudge and Barrett 1981:258). The assumption of this research, however, is that overt compliance is less important than compliance derived through negotiation, bargaining, and compromise.

Strauss (1978) argues that social order - the norms and rules which define permissible behavior - is in a constant state of flux and that the solidification of social order at any point in time is the result of negotiations which determine what that order should be. Applying this perspective to organizations, Elmore (1978) suggests that negotiation and change is the key to understanding organizational behavior. From this perspective, agreements are never final. They are merely respites between rounds of negotiation and represent the best deals participating parties can make for the moment.

Seen in this way, implementation is an evolutionary process that is constantly changing to adjust to an ever changing world (Majone and Wildavsky 1984:176). Negotiating actors, however, are not completely free. They must contend with structural constraints imposed by limited resources and political power (Fudge and Barrett 1981:263). In addition, data from the Little Sioux indicate that disparity in power between agencies can limit their options to negotiate solutions to needs.

Insufficient attention in the literature has been given to the importance of history and external factors that shape the negotiation process and predispose it in a certain direction. Two of the derived concepts, false expectations and disparity of objectives, explain why. The false expectations laid down by SCS at the beginning of the program relative to their willingness to assume maintenance responsibilities set the stage for further negotiating sessions. By agreeing to perform maintenance, SCS abdicated their power to negotiate on
equal terms with the landowners. The landowners, having obtain what they wanted (structures to stop gullying without responsibility for them) had no reason to continuing to bargain. SCS for its part wanted to renegotiate the agreement and have landowners assume more responsibility for maintenance. However, SCS had little to offer in return, and many landowners have been unwilling to change the original agreement.

The relation with conservation districts is similar. SCS set the expectation early in the watershed program that it would assume responsibility for some types of maintenance. Hence, negotiations were around whether a maintenance requirement was to be the responsibility of SCS or of the district. The fundamental purpose of the policy, to have local sponsors in control of the program, received little attention as both agencies concentrated on more tangible concerns.

The locus of ownership concept explains a similar process. For many landowners the structures do not belong to them but to the government. Hence they have minimal concern for them. When SCS has wanted increased maintenance responsibility from them, they have been reluctant to respond.

The grounded theory addresses the issue of limits imposed on negotiation. It also draws attention to the need to examine the degree of power negotiating parties have relative to one another as they attempt to bargain a solution to a problem. In each instance described above, SCS early in the watershed program gave up a large measure of its power. By telling landowners they would have no maintenance responsibilities, SCS obtain the initial compliance of landowners. By completing design deficiency repairs, SCS maintained the continuing integrity of the watershed program. Over time, however, as a result of decisions made to maximize short-term benefits to the program, SCS weakened its position to affect long-term benefits.

If implementation proceeds through a process of negotiation which carries the relevant action from one stage of the program to the next, then the grounded theory suggests that a balance in power between negotiating parties provides a more effective medium for negotiation and for the long term viability of the program.

The 1985 Food Security Act perhaps provides a good example. The landowner and the government each have something to give and something to gain from the relation. Farmers are able to make acceptable profits, and the government is able to ensure better land management practices.
Negotiation is important for understanding policy implementation. More attention, however, needs to be given to the composition of power in the negotiating process. The agency with more overt power may actually have less real power in its ultimate ability to affect behavior. Van Meter and Van Horn (1975), for example, describe how subordinates in an organization can wield considerably more influence and authority than their formal positions would indicate by gaining control over "persons, information, and instrumentalities" (Van Meter and Van Horn 1975:455). Their power may be enhanced by superiors who have little knowledge of their subordinates' activities. Local sponsors are in a similar position. It is they who are in regular contact with one another and other local people needed to carry out the policy. Further, they control the communication networks, what information passes along these networks, and the formal and informal arrangements that are needed to initiate and complete an activity.

Because a policy initiating agency has diverse responsibilities, it is usually unable to provide close supervision of the local sponsor. In addition, the parent agency also has weak options for sanctions (Van Meter and Van Horn 1975:467-468). As a result of these two factors, local actors have considerable freedom to recreate public policy and implement it to best fit their needs.

The grounded theory indicates that for a federal agency wishing to support local control, it needs to maintain a balance of power between it and the local sponsor. By allowing the local sponsor to become dependent, the federal agency enables the sponsor to attain power over it through potential inactivity. This in turn compromises the ability of the federal agency to perform its responsibilities and precludes the assumption of control by the sponsor. A balance of power between agencies allows each to negotiate from a position of strength.

Perceptions and values

A basic assumption of this research is that reality is constructed in different ways by different individuals. Each individual has need to impose order on experience and does so by developing a model of the world based on their personal experience. Perception and experience thus reinforce one another to shape human behavior. Human action then is not in response to an observable stimulus but is a product of a system of expectations which originate in the actors' past experiences and which define their perceptions of the probable reaction of others to their acts. Through action, humans construct a social world with its
own internal logic. The internal logic of this world and the developed network of meanings is what must be understood by the outside analyst to truly understand and explicate human behavior (Silverman 1974:126-127).

In assessing implementation outcomes, actors' definitions of the situation and the subjective meanings they attach to their actions and to the actions of government actors are keys for explaining their behavior (Fudge and Barrett 1981:266). Helco and Wildavsky (1974), for example, examine how government officials came to decisions about the spending of public money and conclude that it is the officials' perceptions of the problem and the need for action that is the crucial factor. Objective definitions of need are of considerably less importance. Sabatier and Mazmanian (1981) distinguish between actual impacts and perceived impacts of a policy. They conclude that the perceived impacts are more crucial in finally determining public acceptance for the policy.

In the grounded theory, the concept of false expectations describes how the perception of what constitutes responsibility is more crucial than the formal agreements that specifically define the duties of responsibility. According to the theory, how actors perceive their responsibilities can result in behaviors that support policy initiatives or in behaviors that are contrary to the policy's original intent. In the Little Sioux watershed, SCS formed initial perceptions of maintenance responsibilities by promising landowners they would not be responsible for maintenance and by assuming responsibility for the repair of problems caused by design deficiencies. As a consequence, local actors perceived they would not be responsible for maintenance activities. Government actions helped local actors define the limits of local maintenance responsibility. SCS created an alternate reality to the one it intended, namely local responsibility for maintenance.

The theory also describes how a government agency's self-perceptions can dictate its response to policy initiatives. If an agency's definition of duty is grounded in a belief that it is responsible for an important aspect of the public trust, it will act with great fervor to carry out the dictates of policies which advance the public welfare. SCS's perception of itself as a preserver of soil and a preventer of soil erosion enables it to maintain a long-term commitment to adequate maintenance for the watershed structures. In contrast, local landowners who see the structures primarily as objects which belong to the government, are less concerned with the public benefit that derives from the structures and relatively soon lose interest in them.
The attitudes, values, and perceptions of the situation held by various actors shape their response to the problem definition and to appropriate action (Fudge and Barrett 1981:264). Consequently, divergent experiences and perceptions can serve to divide groups from one another (Kiviniemi 1986:262). Thus, it is important to examine and understand the underlying assumptions and values which influence the problem definition and agreed upon solution. For farmers in the Little Sioux area, private ownership of land is a dominant societal value. Hence solutions to problems of soil erosion that impose land-use restrictions are resisted by farmers. Each said they would prefer to make land-use decisions themselves. Though farmers are genuinely concerned about conservation and try to farm in ways that are less harmful to the soil, their land is still theirs and they do not want someone telling them how to use. As one farmer said: "It is un-American." Individuals or agencies that are perceived to support restrictive land-use thus have minimal support and credibility in the rural community.

The derived concepts of false expectations and immutable societal value help explain the implementation experience in the Little Sioux watershed. Their significance in this instance gives added credence to the importance of understanding the value definitions and perceptions of reality that guide people's behavior. From the perspective of the policy-making agency, these concepts demonstrate that perceptions can generate unintended consequences for policy initiatives. SCS actions early in the program created an alternative reality it did not desire. Thus, decisions and activities taken at one point in time may over a period of time create patterns of behavior that are debilitating to the overall objectives of the policy.

Adequate resources

The need for adequate resources, including funds, equipment, and technical expertise, to successfully implement policies is axiomatic (Gunn 1978, Sabater and Mazmanian 1981). Van Meter and Van Horn (1975:465) for example indicate that the limited supply of financial resources is the major contributor to the failure of government programs. Scharpf (1977) suggests the state's increasing inability to provide adequate support for policy initiatives undermines the viability of these initiatives and precludes the ability of the state to continue to play as important a role in solving social problems as it has in the past.
Other literature discusses how sufficient resources and the degree of specificity in the policy mandate interact to influence the implementation experience. Montjoy and O'Toole (1979) theorize that the more abundant the resources and the more narrow the mandate, the easier the implementation task. This position is consistent with the grounded theory. If local actors have insufficient resources, and if mixed messages are given about the extent of local responsibility required, it is theorized that local sponsors will be less willing to assume full responsibility for the program. This has been the experience in the Little Sioux watershed. Insufficient resources were available for local sponsors to assume full responsibility for the program and the policy mandate, while clear and concise in the legislation, was presented in a vague and uncertain manner. As a result, local sponsors did not assume full responsibility for the watershed program.

Kiviniemi (1986:259-260) discusses how resources interact with values to either promote or impede policy initiatives. The grounded theory can be interpreted in a similar way. Local actors with poor access to resources and with values supportive of other objectives, maximization of profits for example, have little or no support for assuming local responsibility. In the grounded theory, values interact with resources in other ways as well. The concept of perceived financial security is grounded in values of thrift and debt avoidance, which influence the perceived amount of available resources. Because sponsors want to avoid debt, they redefine their responsibility to conform to the level of available resources.

Resources are generally thought of as tangible items which can be replaced when they become scarce. The concept of perceived financial security, however, suggests that perception of quantity available may be more important than the actual amount available. In the Little Sioux watershed, the availability of resources, both real and perceived, limit what local sponsors do relative to their legislated responsibilities. Limited resources have forced the districts to maintain an over-dependent relation with SCS to obtain needed assistance. And, the perceived inadequacy of funding has prompted them to limit spending and/or to redefine their responsibilities. The concept of perceived inadequacy of resources suggests that in some instances intervention strategies may be needed to help local sponsors redefine their reality to be consistent with more commonly held perceptions.
The external environment as catalyst for change

Macro-influences are a catalyst for change and adjustment. Because policy is formed in response to problems created by a changing social and economic environment, the policy must change to reflect the changed external reality. In this way, policy both changes in response to external factors, and, in its changing, is a force for further change (Fudge and Barrett 1981:273).

Van Meter and Van Horn (1975:472) describe the influence of environmental factors in terms of adequacy of resources and local support, and how prevailing social and economic conditions will be affected by the implementation of the policy. They also suggest that the support or opposition of elites and interest groups can have an important influence on how a policy is implemented. Sabatier and Mazmanian (1981:7) identify external factors as socioeconomic conditions, available technology, public support, and support from leaders. Sarason (1981:9) indicates that policy is forged in the marketplace of power and influence. When power and influence shift over time, policy must change to reflect the new balance of power and influence.

The above literature discusses a variety of external factors such as, resources, local support, socio-economic conditions and technology, that influence policy implementation. Each of these factors helped shape the development of policy in the Little Sioux watershed. Inadequate resources helped maintain the dependent relationship between SCS and the conservation districts. The absence of local support required the districts to establish maintenance funds to support their maintenance activities. Changing technology made it possible to change the design deficiency definition which tied SCS to a long-term commitment to perform maintenance. And, socio-economic factors brought about new land use patterns.

Though these and other factors are important in shaping policy implementation experiences, little attention has been given in the literature to how local actors respond to these external factors. The grounded theory suggests the external environment is a critical influence on the design and implementation of policy. Specifically, the concept of non-adaptation suggests that if a formal policy does not adjust to fit a changed external environment, local actors charged with implementing the policy will make necessary adjustments to bring the policy into line with their perception of the problem and the resources they have to address the problem.
The grounded theory provides a unique perspective to implementation literature. Most literature and research describe situations where there exists a greater degree of formal control and authority between the policy making agency and the implementing agency than exists between actors in the Little Sioux Watershed. The grounded theory describes the consequences of a relationship between organizations which are independent in legal structure yet dependent in function. The results derived from an examination of this experience can be helpful for understanding the limits of such arrangements for achieving prescribed policy objectives. The key notions derived from the grounded theory are as follows.

The grounded theory has drawn attention to the importance of determining whether implementation structures are formed voluntarily or imposed by some external force. The findings suggest implementation structures are more effective when voluntarily joined.

A local sponsor's need for financial and technical resources and a federal agency's need for legitimacy at the local level can create an imbalance which skews negotiating power to the local sponsor which gives legitimacy to the federal agency. Because such a relationship can compromise the authority and integrity of the federal agency, it is important that the local agency be required to draw more on local sources of financial and technical assistance to maintain a balance in negotiating power. In this way, the federal agency is able to maintain control of its activities, and the local sponsor is able to maintain independence of decision making and authority.

Negotiation does not take place in a static environment. Thus, in examining implementation in terms of negotiation processes, one must consider history and the prior expectations that are brought to the negotiating arena. External events and the level of commitment of the negotiating bodies can significantly influence the process and the outcome.

The grounded theory reaffirms the importance of understanding actors' definitions of reality and dominant values for interpreting their behavior.

In summary, traditional top-down approaches to implementation analysis provide the observer with a one dimensional view of the implementation process. On the other hand, a purely local perspective results in description with little assurance that the description will hold valid in other situations. As an alternative, Fudge and Barrett suggest a "grounded
theory approach to the study of implementation" (Fudge and Barrett 1981:250). They suggest this as a means to link the need for detailed study at the empirical level with the need to develop theory that will be applicable in a variety of situations. The present study is a contribution to this effort. The concepts derived from the Little Sioux Watershed program provide suggestions to administrators seeking to maximize local control and responsibility. The derived concepts are suggested alternatives to the perfect implementation schemes derived from an idealized notion of how policy should be implemented (Gunn 1978, Sabatier and Mazmanian 1981). Policy recommendations based on the derived concepts are discussed in the following chapter.
CHAPTER VIII

RECOMMENDATIONS

Policy research provides pragmatic, action-oriented recommendations to policy makers (Majchrzak 1984:12). This chapter fulfills this charge by offering recommendations to Soil Conservation Service policy makers regarding the Little Sioux Watershed program. And the chapter offers general recommendations for implementation strategies that will increase the likelihood of local sponsors assuming the degree of implementation responsibility specified by the enabling legislation.

Policy recommendations are not made in a vacuum. Consequently, the criteria used to formulate recommendations is an important issue. Recommendations may be informed by policy objectives as well as by input gathered from target actors and other local informants. The relative weighting of these two sources of information when formulating policy recommendations can serve to maintain a policy in its existing form or to redefine a policy to better serve local needs. The chapter begins with a brief discussion of the criteria used for making policy recommendations.

Criteria for Policy Recommendations

The making of policy recommendations to improve policy performance is a normative activity. The policy-focused approach to implementation analysis assumes that the prescriptions and methods which constitute the policy are correct and in the best interests of the target population in particular and of society in general. From this perspective, recommendations should support policy objectives and suggest ways to better achieve their ends. In contrast, however, the action perspective is descriptive. The standards of this perspective are an accumulation of individual viewpoints without reference to a unifying set of values or norms. The action perspective is an effective method for describing how things are, but it is less effective for describing how things should be (Hogwood and Gunn 1984:207, Linder and Peters 1987:463).

Elements of the public policy provide standards to measure results. The action perspective, on the other hand, provides insight into how people understand and define these
prescriptions and how they perceive the limits to change. The perspectives are complimentary, and both are needed for effective policy recommendations. Because of the normative character of recommendations, the analyst should make explicit what objectives he/she is advancing.

The following section offers recommendations specifically for the Little Sioux Watershed project. The next section offers general recommendations.

Recommendations for the Little Sioux Watershed Project

The purpose of this research was to develop an explanation for the failure of the local sponsors to assume full responsibility for the operation and maintenance of the watershed structures that were built as a part of the Little Sioux Watershed program. The assumption of the following recommendations is that local control is a reasonable objective for the watershed program and that it is an attainable objective given certain modifications in the program. It is further assumed that local control is a value that should be promoted. Hence, the following recommendations are suggestions for helping local sponsors assume greater control and responsibility for the operation and maintenance of the structures in the Little Sioux watershed. The recommendations incorporate local concerns about what currently prevents local sponsors from assuming greater responsibility.

General strategies for building local capacity include expanding the base of citizen involvement, enhancing the leadership pool, and enlarging the information base (Garkovich 1989:207, Ryan 1987). These strategies will provide a framework for recommendations to increase local capacity to carry out the maintenance responsibilities of the Little Sioux Watershed program.

Expanding the base of citizen involvement

Actions are needed to involve a greater number of people in deliberations about the watershed program and its future in the area. In this way, local citizens can provide direction and support for changes required in the operations and maintenance program.

1. There should be an information program to inform landowners and other Little Sioux citizens about the watershed structures, their history, their purpose, and the care that landowners can give them. There would also be benefit in developing written material on these subjects to distribute to farmers and other interested individuals and organizations.
2. Iowa State University's final report evaluating the Little Sioux watershed maintenance program should be widely circulated among SCS personnel, district commissioners, boards of supervisors, and the public in the study area. The report can educate people about current problems with the watershed program and invite their input for negotiated solutions. To the extent the report is controlled by SCS/Des Moines, to that extent does it reinforce the perception that problems with the watershed program are primarily the responsibility of SCS and that any solutions will be imposed by SCS/Des Moines. As a result, there will be less incentive for local actors to seek solutions. Many people provided information for the study; they should have the benefit of the study's conclusions. The report could be used in conjunction with the Soil Conservation Service's Western Iowa Riverbasin Study as the basis for a public discussion about the watershed program and its future in the area.

Enhance the leadership pool

New leaders should be identified and trained to give direction and support to soil conservation programs and to the operation and maintenance program for the watershed structures. As well, current district commissioners and inspectors should receive orientation and training to increase their knowledge and skills relative to managing the operations and maintenance program.

3. The assistant commissioner program that is being developed in Woodbury County should be encouraged and extended to other counties.

4. There should be an orientation and training program to provide new district commissioners with general information about their responsibilities as well as specific information about their respective county and its problems and programs. Current and past commissioners should be surveyed to develop the specific content of the orientation and training program.

5. There should be a commissioner's manual (loose leaf) that each commissioner can use as a reference and as a guide to his/her responsibilities and to the procedures that should be followed for implementing the program. Again, current and past commissioners should be surveyed to develop the specific content for the manual.

6. More extensive training is needed for the inspector to upgrade his skills. The inspector position should be accorded professional status. It should be either a full time
position or defined as part of the responsibility of a full-time position. The role of the inspector in Woodbury County might be used as a model for other counties.

**Enlarging the information base**

Local sponsors and landowners need technical information to help them better manage the watershed maintenance program, and they need process information to help them resolve conflicts and establish good working relationships. Their respective authority and responsibility for maintenance should also be specified.

7. There should be regular financial reports and an annual audit of any funds controlled by the commissioners with the final report distributed to SCS, the board of supervisors, and other interested parties. A feedback mechanism should be incorporated into the reporting process to provide the commissioners with a more objective assessment of their financial condition and the appropriateness of their spending patterns.

8. Parameters of acceptable maintenance criteria should be established by SCS. These criteria, along with action strategies to implement them, should then be taught to the commissioners and inspectors in training sessions specifically designed for this purpose. Local action strategies should be informed by local input to ensure their successful implementation.

9. A good working relationship with the boards of supervisors should be established in each county. This should include regular meetings to talk about mutual concerns and planning sessions for mutual cooperation. It is recognized that it would take cooperation from the supervisors to make this possible. Nonetheless, an effort to bring about better relationships and to increase the involvement of the supervisors in the watershed program should be initiated.

10. There is need to provide specific feedback to the district commissioners, the boards of supervisors, and landowners describing maintenance problems with the watershed structures from the perspective of SCS/Des Moines. The view from the field is that they are doing as well as can be expected with available resources. The discrepancy of perspectives can be used as a point of intervention.

**Other considerations**

Providing needed information, enhancing communication, and increasing the skills of local actors is an important but not sufficient strategy to build local capacity (Wilkinson
1986:9). In the Little Sioux watershed, structural issues which make it difficult for local sponsors to carry out their responsibilities for the watershed program need to be addressed.

11. SCS needs to decide who ultimately has responsibility for the operation and maintenance of the watershed structures and what that responsibility means. The information then needs to be clearly communicated to all local sponsors. If local sponsors have ultimate responsibility, SCS needs to allow the sponsors to implement their responsibilities without SCS interference. If SCS continues to intervene, the question of responsibility is blurred.

12. Local sponsors must have adequate resources to carry out their responsibilities. A funding plan should be developed for each county that specifies sources of funds and an appropriate mechanism conservation districts can use to draw on these funds for the operation and maintenance of the watershed structures.

Conclusions

There are limitations that would need to be overcome before implementing several of these recommendations. However, an awareness that alternatives to current practices exist can serve as a point of departure for discussions about local sponsors assuming greater responsibility for the watershed program.

General Recommendations

This section discusses actions federal policy makers can take to increase the likelihood that local sponsors will carry out responsibilities delegated to them by federally initiated programs. The guiding assumption of these recommendations is that local sponsors should assume greater control of federally sponsored programs. The recommendations suggest ways to create conditions that can make this possible.

Concepts derived from examining the implementation of the Little Sioux Watershed program suggest barriers which if not adequately addressed by an implementation strategy may prevent local sponsors from assuming the degree of responsibility specified in the enabling legislation.

The concepts of false expectations, disparity of objectives, and locus of ownership are concerned with issues resulting from miscommunication, misunderstanding of the program's intent, insufficient attention to unintended consequences, and lack of follow-
through regarding program objectives and obligations. The entanglement and non-institutionalization concepts describe reduced local control resulting from over-dependency on the sponsoring federal agency and the failure to operationalize consistent definitions of authority and responsibility by the federal agency and the local sponsor. The concepts of non-adaptation and perceived scarcity of resources address issues relating to external factors and the need for an adequate resource base to implement programs. The immutability of dominant societal values concept indicates that policies will be shaped more by social values than by legislative mandate.

An effective implementation strategy, therefore, will provide for accurate information about the policy. The strategy will ensure that the target audience has a clear understanding of the policy's intent. It will seek to minimize unintended consequences that are contrary to the policy's objectives. It will define clear areas of authority and responsibility between the federal agency and the local sponsor and minimize interdependence between the two agencies. The strategy will be flexible to accommodate changes at the macro level, and it will ensure that sufficient resources are available for the local sponsor to carry out its responsibilities. Finally, the strategy will attempt to work in concert with dominant societal values which are supportive of policy objectives.

If the goal of the implementation strategy is for local sponsors to assume control of the program, then the development of the strategy must begin at the local level with local input rather than be imposed by the federal agency (Elmore 1978:215). Federal agencies charged with implementing policy initiatives with local sponsors, therefore, have a dual task. They must develop local capacity, and they must create conditions for the policy initiative (both its content and the idea of local control) to readily diffuse.

The adoption-diffusion model provides a comprehensive inventory of the tasks and information needed to create an effective implementation strategy. The inventory of tasks will be integrated with the general strategies for building local capacity to suggest recommendations outside agencies may use to enable local sponsors to assume program responsibilities given them by the enabling legislation.

The adoption-diffusion model may be used to:

- determine relevant characteristics of the target population,
- select key individuals to initiate the policy,
- select information sources and communication channels,
- understand the role of attitudes and values,
- understand the role of structural or institutional constraints
(Korschning et al. 1983:430).

**Relevant characteristics of the target population**

Knowledge of the target population is an important first step in designing an implementation strategy. The data gathered at this stage will provide the basis for designing a communication strategy and for learning local values and attitudes. This task can also be used to build support for the policy by using an action research strategy. Action research "is a process through which researchers - with research concepts and skills - and citizens - with concerns about issues - work together in a co-equal partnership to develop sound information for use within a particular setting" (Littrell 1985:188). Action research provides a means to learn about the target population as well as involve local citizens in addressing the policy issues. This research strategy increases local actors' knowledge of the problem, generates local commitment and support for a solution, and increases the outside agency's knowledge of the local population and sensitivity to their needs.

**Select key individuals**

Policies are implemented through people. Hence it is important to identify those individuals who will support the policy initiative and who will assist in "selling" it to others. Adoption-diffusion theory suggests that specific groups, each with unique characteristics, will adopt new ideas in predictable patterns. One group, the early adopters, hold positions of prestige and influence within the social system and serve as opinion leaders and role models for other members of the system. They decrease uncertainty about a new idea by adopting it and conveying their evaluation of it to other members of the social system through interpersonal networks (Rogers 1983:249).

When determining local population characteristics, individuals can be identified as potential members of the early adopter group. Leaders and supporters for the policy initiative can be drawn from this group and used to convey information about the policy to other members of the target population.

Citizen involvement in the implementation process can be expanded by working with existing associations or organizations. Local groups are an integral component of local capacity because they are already in existence and because they can involve people who
otherwise might be ignored (Garkovich 1989:209). Extant organizations are more effective than organizations specifically created by an outside agency to assume responsibility for local programs (Hughes 1985:88). Hence, local sponsors should be drawn from extant organizations or associations. Such groups can serve as a focus for support of the policy and help to carry out local responsibilities described in the policy.

Local sponsors and other supportive citizens need appropriate knowledge and skills to carry out their responsibilities as local sponsors and as supporters of the policy initiative. Process-oriented and technical-oriented knowledge are needed (Ryan 1987:16-9). Training in social action strategies and conflict management are process oriented methods that can enable local sponsors to identify specific steps for achieving goals or for resolving conflicts that inevitably arise as policies are implemented. A training of trainers component should be an integral part of any leadership and skills training program. In this way, training can be ongoing with minimum recourse to an outside agency.

**Information sources and communication channels**

There needs to be an effective communication campaign that accurately communicates information about the policy's objectives, its projected impacts, and the responsibilities local citizens will have relative to the policy. If people better understand and are in agreement with the policy's prescriptions, they will be more supportive of them. The campaign should avoid making promises that cannot be kept and creating impressions that are contrary to the intent of the policy. The ultimate goal of the campaign should be to create the reality that local citizens and sponsors will assume ownership of the program. They should understand that it is their program and not the government's.

Merely providing information about the policy, however, is not sufficient to generate local support. Personal contact and concrete examples of the policy's benefits will help persuade people to support it (McAlister 1981:96). The credibility of those providing the information as well as the frequency of contact are important elements in generating support for a policy initiative (Atkin 1981:275-277). Individuals who have credibility with the target population should have prime responsibility for conducting the communication campaign. Policies generally have a long life before they are considered routine (Kiviniemi 1986:254). Therefore, an ongoing communication campaign should be instigated to shape people's understanding and acceptance of the policy over an extended period of time. The principles and practices of product advertising might be helpful in this regard.
The role of attitudes and values

The values, attitudes, and experiences of different groups of actors shape perceptions of the policy and determine whether or not action is needed to address issues raised by the policy (Barrett and Fudge 1981:28). Therefore, a policy has no particular meaning until one is attached by the various participants in the policy process (Steinberger 1981:30). Because attitudes and values help define meaning, outside agency personnel need to be sensitive to local values relevant to the policy and integrate these values into the implementation strategy. For example, in areas where the desire for autonomy and independence is strong, these values can serve as motivation for local control.

Structural or institutional constraints

Structural constraints can result when the local sponsor's responsibility and authority are inconsistently defined, when over-dependence prevents the local sponsor from controlling its resources and decision-making, when external events significantly change the original conditions that the policy was designed to address, and when there are inadequate resources for the local sponsors to perform their responsibilities (Hogwood and Gunn 1984:199-205). Strategies need to be incorporated in the implementation design to address these issues.

There should be clear definitions of responsibilities and lines of authority and communication established between the federal agency and the local sponsor. Actors should know procedures for taking action and when action is to happen. The federal agency should support the independence of the local sponsor, and the federal agency should not assume local responsibilities. The local sponsor's ability to assume responsibility should not be compromised.

The federal agency also needs to decide how much control it is willing to give the local sponsor. If it is willing to give complete control, then it needs to be willing to live with the consequences. If it is willing to give only partial control or if some consequences are unacceptable, it needs to know these parameters when negotiating with the local sponsor. Without knowing the parameters, the agency may someday find that it has assumed more control and responsibility than it wanted.

External events include changes in the economy, the resource base, government policy, and political considerations. Changes in any or all of these factors can profoundly influence local events and significantly change the policy environment. When this happens,
the policy-making agency should adjust the policy to better fit the changed external reality and retain the integrity of the policy. If policy-makers fail to make these adjustments, local actors will make changes on their own. Their adjustments may or may not retain the original intent of the policy.

Strategies for controlling and responding to the environment include the use of environmental impact statements, force field analysis, environmental scanning, and trend data for forecasting. Building in flexibility might include developing contingency plans for aspects of the implementation when environmental conditions appear ambiguous or when predictors indicate the possibility of substantial change (Kettner et al. 1985:215).

Adequate resources are key to local sponsors successfully implementing responsibilities required by the policy initiative (Van Meter and Van Horn 1975:471, Montjoy and O'Toole 1979:468). Thus, a mechanism is needed to generate adequate resources for the local sponsor to use in implementing its responsibility. If inadequate resources are available, it may be best not to implement local control measures or to modify them to fit the resource base. Local sponsors ultimately will assume only responsibility for those program aspects which are supportable by the available resource base.

Summary

In summary form, the recommendations are as follows. Many of the recommendations are interrelated and help reinforce one another.

1. Determine the relevant characteristics of the target population using an action research strategy.

2. Identify and solicit the support of early adopters within the target population who will support the policy's objectives and local responsibility provision.

3. Identify and solicit the support of local associations for the policy initiatives.

4. Provide a regular training program to give local sponsors and other supporters an appropriate knowledge base and the technical skills needed to carry out their responsibilities.

5. Conduct a communication campaign to inform the target population about the policy initiative. Implement a long-term advertising program to keep people aware of the policy and supportive of its objectives.

6. Learn local values and incorporate them into the implementation strategy.
7. Specifically define the respective authority and responsibilities of the local sponsor and the federal agency.

8. Ensure that the local sponsor has adequate independence to control resources and decision-making.

9. Ensure that there are adequate resources for the local sponsor to carry out its responsibilities.

10. Make adjustments in the policy content and structure to reflect a changed external environment.
When federal programs are initiated to serve local needs, it is generally a matter of policy to give local sponsors responsibility for implementing the program after the initial federal involvement is complete. In addition to solving local problems, such programs also address general societal needs. In the Little Sioux watershed, for example, the watershed program was developed to stop flooding and severe soil erosion as a means to maintain the economic viability of the area and to preserve soil for the good of society.

Since local sponsors primarily represent local interests, and since they usually have access only to local sources of financial support, they will redefine policy and implementation strategies in ways which are consistent with their perception of the problem and their available resources. Local solutions, however, may be inadequate to address the larger societal need that was the original goal of the policy. Hence, the policy does not achieve its stated objectives, and the societal good may be compromised. To be certain that the stated objectives of the program are met, the federal agency initiating the project may assume greater responsibility for implementing the program than was intended by the sponsoring legislation. This alternative, however, compromises the integrity of the federal agency and is an added drain on its resources. Local control is also compromised as local sponsors are discouraged from assuming their full responsibility.

Federal agencies prefer that programs achieve their intended results and that policies which guide these programs be implemented as prescribed. The research problem for this dissertation, therefore, has been:

1. to learn how implementation strategies can be better devised to increase local compliance with policy objectives and to minimize policy drift;

2. to learn how an outside agency, the federal government for example, can retain influence on the direction and integrity of a policy over which it has no formal control.
Data for this research were obtained by examining the operation and maintenance program for the watershed structures built by the Little Sioux Watershed project in Western Iowa. The specific objectives of this study were:

1. To gather data from primary and secondary sources to be used to derive a substantive implementation theory;
2. To derive a grounded theory explaining local actor behavior relative to the maintenance of the Little Sioux watershed structures;
3. To derive a general theory of policy implementation and to compare this derived theory with other implementation theories;
4. To make recommendations for improving implementation strategies.

The data were obtained from personal interviews with 65 individuals who were knowledgeable about the operation and maintenance program of the Little Sioux Watershed project. Additional data were obtained from the Iowa State University Archives and from general publications about the watershed program and the Soil Conservation Service.

Findings

According to the grounded theory, the implementing behavior of local sponsors in the Little Sioux watershed was influenced by a variety of factors: the initial promise of SCS to assume maintenance responsibilities; SCS's willingness to repair design deficiency problems; the failure of landowners to assume ownership of the watershed structures; changes in land-use practices which hastened the deterioration of the structures and increased financial pressure on the sponsors; the absence of an adequate resource base to support the local sponsors' independence from SCS and the consequent over-involvement of SCS in local sponsors' affairs; the failure to institutionalize standard operating procedures; and the persistence of a land-use ethic that vests ownership of land in the individual and accords him/her the right to use it as a production input to maximize profit.

According to the grounded theory of policy implementation, local sponsors and actors will redefine federal policy initiatives and implement programs to be consistent with local expectations of government behavior, the availability of local resources, their dominant values, and their perceptions for how best to survive in a competitive economy.
The response of many farmers to the watershed program is illustrative of the theory. Farmers' initial reluctance to participate in the program was overcome by government promises that they would have no continuing responsibility for the watershed structures built on their property. For these farmers, the watershed structures belong to the government, who has responsibility to maintain them. Other concerns are now more important. Today, farmers are primarily concerned about low prices for their products, increasing government regulations, and the impact on their operations of increasing public concern about the environment. The cumulative effects of these issues on farmers' ability to make a profit receive considerably more attention than issues relating to the maintenance of watershed structures.

Federal agencies thus need to ensure that their actions shape local sponsors' perceptions of reality in a way consistent with the dictates of the policy. Further, agencies should be certain that an adequate resource base exists to provide local sponsors with the resources they need to carry out the imposed responsibilities. In addition, federal agencies need to develop mechanisms to ensure that available resources are actually utilized. Federal and local agencies should avoid entangling alliances that commit the federal agency to assume more responsibility for local affairs than required by the enabling legislation. An over-responsible federal agency curtails the ability of a local sponsor to make independent decisions and to assume the full extent of its authority. Finally, federal agencies need to be aware of the local impacts of macro-level changes in social and economic systems and how these impacts will alter the policy in question. Federal agencies' failure to make needed adjustments in the practical interpretation of the policy serves as a catalyst for local sponsors to make their own changes and, in the process, compromise the integrity of the policy and the social goals it seeks to attain.

Significance of this Study for Policy Theory and Research

The grounded theory provides a unique perspective to implementation literature. Most literature and research describe situations where there exists a greater degree of formal control and authority between the policy making agency and the implementing agency than exists between actors in the Little Sioux watershed. Consequently, there was little extant theory to guide the research. Thus, a grounded theory methodology which generated theory to explain the implementation of policy in such situations was particularly useful.
The grounded theory describes the consequences of a relationship between organizations which are independent in legal structure yet dependent in function. The results derived from an examination of this experience can be helpful for understanding the limits such arrangements have for achieving prescribed policy objectives. The key notions derived from the grounded theory are as follows.

1. The grounded theory has drawn attention to the importance of determining whether implementation structures are formed voluntarily or imposed by some external force. The findings suggest implementation structures are more effective when voluntarily joined.

2. A local sponsor's need for financial and technical resources and a federal agency's need for legitimacy at the local level can create an imbalance which skews negotiating power to the local sponsor which gives legitimacy to the federal agency. Because such a relationship can compromise the authority and integrity of the federal agency, it is important that the local agency be required to draw more on local sources of financial and technical assistance to maintain a balance in negotiating power. In this way, the federal agency is able to maintain control of its activities, and the local sponsor is able to maintain independence of decision making and authority.

3. Negotiation does not take place in a static environment. Thus, in examining implementation in terms of negotiation processes, one must consider history and the prior expectations that are brought to the negotiating arena. External events and the level of commitment of the negotiating bodies can significantly influence the process and the outcome.

4. The grounded theory reaffirms the importance of understanding actors' definitions of reality and their dominant values for interpreting their behavior.

Personal interviews proved to be an effective means to obtain respondents' views on the issues in question. Personal interviews made it possible to ask follow-up questions, and respondents were able to provide information they believed was important rather than only respond to issues raised by the researcher. Personal interviews were particularly effective for this study as the issues were complex and extended over a considerable period of time.

The opportunity to personally interview respondents was especially helpful to some farmers who had great difficulty in answering the structured questions of the formal survey instrument. For many farmers, the rigid categorization of reality imposed by the structured questionnaire did not fit their conception of reality, hence it was difficult for them to
respond. For this group, reality was concrete and particular. They were unable to abstract from particular experiences to general experiences or perceptions of an issue and answer on a more-less, strongly agree-strongly disagree continuum. These distinctions had no meaning for them. When these individuals could not answer a question, they would feel stupid, embarrassed, and frustrated. Thus, it was important to be able to ask questions in other ways or to ask follow-up questions as a means to either obtain information or to clarify answers.

The personal interview was also helpful when interviewing individuals who had a range of experience and insight beyond the scope of the prepared questionnaire. To be able to discuss these issues with them added significantly to the quality of the data.

One weakness in relying on personal interviews to collect data was the small number of individuals that could be interviewed within any one county. A lack of representativeness may have resulted leading to a biased perspective. For instance, it would have been useful to have interviewed more large (1000 acres or more) farmers and more farmers less sympathetic to soil conservation.

Another potential problem with this methodology is that the researcher's biases and preconceptions can influence the discussion of issues and the conclusions reached. This researcher addressed the validity question by being aware that it was a potential problem, by a liberal use of clarifying questions and summarization, and by corroborating data from one respondent with data from other respondents. Extensive notes were taken and regularly edited to retain the respondent's perspective.

Needs for Additional Research

The present study suggests several areas for additional research.

1. The grounded theory and its component concepts need to be tested and used to analyze other like situations to learn what general usefulness they have for explaining local sponsor behavior. The prime method used to empirically study implementation is the case study (Montjoy and O'Toole 1979:467). These studies focus on a relatively narrow span of time with insufficient attention given to how the implementation process fits within the larger social system (Kiviniemi 1986). Because any intervention strategy is an attempt to maintain or transform an extant social order (Lloyd 1986:189), implementation is best studied longitudinally (Van Meter and Van Horn 1975:474).
The grounded theory developed in this study was generated by examining a program that has been in operation for 40 years. Hence, the data provide a unique perspective that can serve as a starting point for examining the long-term experience of policy initiatives. The study was not a true longitudinal study, but the concepts derived from the study can serve as the basis for designing longitudinal studies of policy implementation.

2. An initial assumption of this research was that reality is a socially constructed phenomenon and that by understanding how relevant actors construct their reality and impose meaning on elements of the policy world, the researcher can better understand the implementation experience. This perspective proved fruitful in the present research. The concepts of false expectations, disparity of objectives, and locus of ownership emphasized the importance of structures of meaning have for explaining individual behavior.

In a policy context structures of meaning are defined as "the understandings that participants have regarding the policy's purpose, its potential impact and its relationship to other policies" (Steinberger 1981:31). Because the exact meaning of a policy is ambiguous and manipulable, a policy will have different meanings for different individuals. Part of the implementation process, therefore, is for policy implementers to establish the "correct" meaning of the policy (Steinberger 1981:30).

Research is needed to determine how aware policy implementers are of the process humans use to define reality and to impose meaning on policy elements. Results from the Little Sioux study indicate that those policy implementers may have discounted the importance of this process. Otherwise, they might have taken more care to ensure that the original perceptions of the program were consistent with the intentions of the policy. To the extent that this lack of knowledge is generalized, policy implementation will be less effective. Knowledge of the reality construction process can assist policy implementers to use the structure of meaning process to better support the achievement of policy objectives.

3. The grounded theory considers both micro and macro factors in explaining the implementation of the Little Sioux Watershed program. Research is needed to learn the relative influence each factor has for explaining implementation behavior. Berman (1978) indicates that micro factors are more important for explaining a policy's outcome. Sabatier and Mazmanian (1981:3) indicate that macro-level and legal factors primarily determine how a policy will be implemented. The current study indicates that while micro-level factors were crucial in explaining local actors' failure to assume responsibility for maintenance of the watershed structures, often the local actions were in response to macro factors. For
example, farmers plowed more ground in response to falling prices and government programs encouraging full production. As a result, local sponsors felt less responsible for maintenance because increased siltation of structures was the result of factors which they could not control.

A better understanding of these influences can help policy-makers and implementers mitigate at the local level potentially negative impacts of macro-factors and design implementation strategies to take advantage of the strengths of local control. Ultimately, better knowledge and understanding of the relative influence of macro- and micro-factors will allow policy implementers to retain control of the implementation process.

4. The connotation of the entanglement concept in the grounded theory was largely negative. Research is needed to determine if there are positive models of relationships between federal agencies and local sponsors. If found, research is needed to determine what factors account for the positive relationship and to what extent the factors are replaceable to other situations.

Federal agencies and local sponsors will continue to be forced by enabling legislation to work cooperatively. Experience in the Little Sioux indicates that forced relationships between organizations create problems with maintaining a power balance, controlling resources, and maintaining a clear delineation of authority and responsibility. These specific areas could be a focus for research to learn how these factors influence the relationships and operating procedures between functionally dependent agencies.

5. In examining agencies which are functionally dependent, the relationship between control of resources and the balance of power would be a fruitful area for additional research. The conventional assumption is that the agency which controls resources is more powerful and able to influence the behavior of the receiving agency (Van Meter and Van Horn 1975:468). Berman (1978:177) suggests that insufficient attention has been given to the influence and control subordinates have on the overall direction and effectiveness of an organization.

The present research indicates that local sponsors, by virtue of their mutually dependent relationship with SCS, were able to manipulate the more powerful agency by failing to take responsibility for maintenance tasks that by legislative mandate rightly belonged to them. Research is needed to further explicate this phenomenon. If the weaker agency is consistently able to skew the power balance in its favor, the wisdom of forming such alliances is questionable.
Federal agencies are required by convention and political considerations to form alliances with local sponsors. Yet results from this study show that one reason the Little Sioux watershed policy was not implemented as designed was because of the mutually dependent relation between the conservation districts and SCS. The present study indicates that by maintaining relationships with local sponsors, federal agencies lose control of the implementation process and as a result, the projected impacts of the policy are diminished.

6. The assumption is made that local citizens want responsibility and control when resolving local problems. Further, it is believed that local involvement can lead to the successful implementation of programs (Elmore 1978:213, Littrell 1985, Ryan 1987). Other research, however, challenges the assumption that local citizens want to participate in decision making or to be responsible for solving local problems (Hughes, 1985:88), and the record of successful local initiatives is not strong (Garkovich 1989:215, Wilkinson 1986:9).

Data from the Little Sioux study indicate that local sponsors have not been as successful at implementing the watershed program as federal policy makers would like. Data also indicate that local actors expect the federal government to assume major responsibility for the watershed program contrary to the intent of the policy initiative. At the same time, local sponsors and landowners want to influence how the program is carried out.

Research is needed to better clarify what role local citizens want relative to addressing local problems. This research can also address the question of how best to incorporate into the policy design process local perceptions of problems and possible solutions to them.

Related research could be conducted to determine if there are some kinds of local problems that are more amenable to local solutions. In the Little Sioux, for example, respondents indicated they were willing to assume responsibility for minor maintenance tasks but that SCS should have responsibility for major tasks. A final research question is what do local citizens understand by local control and how does this contrast with the perspective of federal agencies.

If research should find that local citizens have minimal interest in implementing some kinds of programs, then more resource efficient implementation strategies could be adopted. For example, as was suggested by several SCS personnel, it may have been more efficient and effective for SCS to assume full responsibility for the operation and maintenance program in the Little Sioux watershed rather than rely on the local conservation districts. Results from such research would enable policy makers to better allocate scarce resources.
7. Ambiguity is a "salient and ineluctable characteristic of public policy" (Steinberger 1981:29). Further testing of research methods is needed to learn how best to study this elusive subject. The use of personnel interviews and archival research in this study proved successful for capturing some of the ambiguity in the implementation of the Little Sioux watershed program. The study, however, was limited in scope. A more structured survey format would have provided a greater breadth of information but would have sacrificed depth for efficiency. Perhaps some combination of a mail or phone survey and in-depth personal interviews would be a good compromise.

Summary

Results from this research indicate that citizens expect the federal government to maintain a critical role in resolving social problems at both the local and national levels. For example, respondents believe the federal government should establish and enforce guidelines for acceptable land-use practices. To retain credibility in the policy arena, however, federal agencies need to approach policy implementation from a more dynamic perspective than currently. Local sponsors and other actors readily make accommodation with a changing physical and policy environment to maximize their position. The federal agencies will need to do likewise.

In this context, implementation might better be understood as evolution. The implementation process is part of a larger social process which is in a constant state of flux. Attempts to influence the direction of social change are in turn influenced by the change process itself. Hence, implementation initiatives are not constants but must adjust to an ever-changing social, political, economic, and physical environment. All the while, some constancy of purpose and direction must be maintained.
REFERENCES

Amendment to District Program and Work Plan
1954  "For Flood Prevention Assistance in Little Sioux Watershed." Little Sioux Works Committee.

Argyris, Chris, Robert Putnam, and Diana McLain Smith

Atkin, Charles K.

Barrett, Susan and Colin Fudge

Barrett, Susan and Michael J. Hill

Berger, Peter L. and Thomas Luckmann

Berman, Paul

Booth, Tim

Brannan, Charles F.
1950  Statement at hearings of the House Committee on Agriculture on the Missouri River Basin Agricultural Program, August 1. United States Department of Agriculture 1846-50.

Census of Agriculture

Census of Agriculture
Census of Agriculture

Code of Iowa
1987  Soil and Water Conservation Laws, Chapter 467A.

Conrad, Clifton

Eberly, Lawrence
1952  Letter to George Lamp, District Conservationist, accepting responsibility for the Theobold Minor Watershed of Woodbury County. Archives, Parks Library, Iowa State University, Ames, IA.

Elmore, Richard F.

Elmore, Richard F.

Etzioni, Amitai

Flood Prevention Operations Guide

Fudge, Colin and Susan Barrett

Garkovich, Lorraine E.

Glaser, Barney G. and Anselm L. Strauss

Gouldner, Alvin W.
Guba, Egon G.  

Gunn, Lewis A.  

Gustavsson, Sverker  

Ham, Christopher and Michael Hill  

Hamlin, Alan P.  

Hargrove, Erwin G.  

Helco, H. H. and Aaron Wildavsky  

Hill, Michael  

Hjern, Benny and Chris Hull  

Hjern, Benny and D. O. Porter  

Hoban, Thomas  
1986  Barriers to Interorganizational relationships: A Comparative Analysis. An unpublished Ph.D. dissertation, Department of Sociology and Anthropology, Iowa State University, Ames, IA.

Hogwood, Brian W. and Lewis A. Gunn  

Hood, Christopher C.  
House Document No. 268, 78th Congress

Hughes, Arnold

Joint Agreement
1988  Joint Agreement between Iowa State University and the Soil Conservation Service, United States Department of Agriculture Relative to the Western Iowa Rivers Basin Study, September 22.

Kettner, Peter, John M. Daley, and Ann Weaver Nichols

Kiviniemi, Markku

Korsching, Peter F., Curtis W. Stoferahn, Peter J. Nowak, and Donald J. Wagener

Krannich, Richard S. and Craig R. Humphrey

Lamp, George E.

Lamp, George E.
1949  Unpublished letter to Mr. S. J. Oberhauser, October 28. Archives, Parks Library, Iowa State University, Ames, IA.

Lamp, George E.

Linder, Stephen H. and B. Guy Peters
Lipsky, Michael

Little Sioux River Watershed

Littrell, Donald W.

Lloyd, Christopher

Maintenance Agreement
1977 Standard Operation and Maintenance Agreement form for agreements between the Soil Conservation Service and local sponsors. Soil Conservation District, Onawa, IA.

Majchrzak, Ann

Majone, Giandomenico and Aaron Wildavsky

Mann, Dean E.

McAlister, Alfred

Moede-Lex, Louise Ann

Montjoy, Robert S. and Laurence J. O'Toole, Jr.
Moon, Wilson, T.

Norby, Steven
1986 Letter to Kirk Bennett, Chairman Monona County Soil Conservation District from Assistant Attorney General, Environmental Law Division, Iowa Department of Justice, Des Moines, IA.

Onawa Sentinel

Operation and Maintenance Agreement

Operation and Maintenance Handbook

Parks, W. Robert

Pressman, Jeffrey L. and Aaron Wildavsky

Rogers, Everett M.

Rossi, Peter H., James D. Wright, and Sonia R. Wright

Ryan, Vernon D.

Sabatier, Paul A. and Daniel A. Mazmanian
Sarason, Seymour B.  

Scharpf, Fritz W.  

Selznick, Philip  

Shadish, William R., Jr.  

Silverman, David  

Soldier Sentinel  
1954 "Monona Flood Damage in Millions." June 17. Archives, Parks Library, Iowa State University, Ames, IA.

Soldier Sentinel  

Soldier Sentinel  
1951 "Cloudburst Damage Here is Heavy." June 21. Archives, Parks Library, Iowa State University, Ames, IA.

Steinberger, Peter J.  

Strauss, Anselm  

Strauss, Anselm  

Summary of Meeting  
1946 Summary of the initial meeting of the Little Sioux Watershed Project, January 3. Archives, Parks Library, Iowa State University, Ames, IA.

Summers, Gene F. and Kristi Branch  
USDA-SCS

Ute Independent
1951  "Discuss Watershed Benefits; Problems." January 11. Archives, Parks Library, Iowa State University, Ames, IA.

Van Meter, Donald S. and Carl E. Van Horn

Wilkinson, Kenneth P.

Williams, D. A.
1952  "Looking Ahead in the Little Sioux Watershed." Unpublished memorandum to R. H. Musser, Regional Director, SCS, Milwaukee, Wisconsin, June 27. Archives, Parks Library, Iowa State University, Ames, IA.

Winter, Gibson

Wittrock, Bjorn and Peter deLeon
APPENDIX

QUESTIONNAIRES
Survey of Conservation Organizations

Background Information

Please indicate your title, agency, location of agency, and years on the job, of your present professional position.

<table>
<thead>
<tr>
<th>Title</th>
<th>Agency</th>
<th>Location</th>
<th>Years Employed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Present position: __________________________________________

Awareness and Perceptions of Operation and Maintenance Agreements

Now, I would like to ask you some questions about the watershed structures located in your soil conservation district.

2. Are you familiar with the operation and maintenance (O&M) agreement existing between the Soil Conservation Service and local sponsors in your county? ______ 1 = Yes 0 = No

3. Who are the local sponsors in your county?
   - Board of Supervisors
   - Conservation District
   - Other

4. Briefly describe your present duties as related to PL534/PL566: __________________________________________

5. Please give some examples of maintenance activities, who is currently doing the activity, and who should be doing it.

<table>
<thead>
<tr>
<th>Maintenance activities</th>
<th>Who is doing</th>
<th>Who should be doing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

6. How well do you feel watershed structures are being maintained (in your county)?

   __________________________________________
   __________________________________________
7. Are there maintenance operations required that you consider to be beyond the expertise or financial capability of the local sponsors?

_________ If YES, what are they?

8. In your county, how is maintenance of watershed structures financed?

9. In what ways can funds be legally raised to finance maintenance of watershed structures?
   (probe: what other options exist?)

10. How is the inspection of watershed structures carried out in your county? Is the inspector a full-time or part-time position and who is he/she employed by? Is the inspector expected to conduct routine maintenance?

11. What follow-up procedures are used for inspection reports?

12. Is maintenance training provided for landowners in your county? If YES, by whom, and what is the extent of the training?
13. How do you think maintenance of structures in your district could be improved?

____________________________________

____________________________________

____________________________________

14. Compared to all your other activities, how high a priority do you give to watershed structure maintenance? In terms of your overall time and resource commitment would you say these activities receive: __________

5 = Very high priority; 4 = High priority; 3 = Average priority; 2 = Low priority; 1 = Very low priority

Relationships with Other Organizations

Now, I would like to ask you about your relationship with other organizations. These include the SCS-State, SCS-Area, SCS-District, County Board of Supervisors, Conservation District Commissioners, Inspectors, and local land owners.

15. a. Which agencies, including your own, do you think determine the priorities for watershed maintenance activities in your county? Please list them in order of importance. b. Which agencies do you think should determine the priorities for watershed maintenance activities?

a. 1. __________________ 2. __________________ 3. __________________

b. 1. __________________ 2. __________________ 3. __________________

16. In 1988, did you attend any formal meetings with _________ to specifically discuss watershed structure maintenance issues?

0 = No 1 = Yes

SCS-State  SCS-Area  SCS-Dist  DC's  BOS  Inspectors  Land Owners

(If YES to question 1) Please tell me about how many times during the past 12 months did you meet formally with _________ to discuss maintenance of structures?

SCS-State  SCS-Area  SCS-Dist  DC's  BOS  Inspectors  Land Owners

17. People also get together informally, to discuss problems. How many times during the past 12 months did you meet or talk informally with _________ to discuss maintenance of watershed structures?

SCS-State  SCS-Area  SCS-Dist  DC's  BOS  Inspectors  Land Owners
18. How well informed are you about the specific responsibilities and objectives of ______ as they relate to watershed structure maintenance and the O&M agreement?

5 = Very well informed; 4 = Quite well; 3 = Somewhat informed; 2 = Little informed; 1 = Not at all informed

| SCS-State | SCS-Area | SCS-Dist. | DC's | BOS | Inspectors | Land Owners |
---|---|---|---|---|---|---|

19. During the past 12 months how often has your agency worked jointly with ______ to plan any watershed structures?

| SCS-State | SCS-Area | SCS-Dist. | DC's | BOS | Inspectors | Land Owners |
---|---|---|---|---|---|---|

If YES, was this planning coordinated separately with these agencies or were several involved?

________________________________________

20. Within the past 12 months how often has your agency worked jointly with ______ to implement any watershed structures?

| SCS-State | SCS-Area | SCS-Dist. | DC's | BOS | Inspectors | Land Owners |
---|---|---|---|---|---|---|

Please describe these activities and the contributions of each agency.

________________________________________

21. In order to achieve your agency's objectives, relative to watershed maintenance, to what extent does it depend upon services, resources, or support from ________?

5 = Great extent; 4 = Considerable extent; 3 = Some extent; 2 = Little extent; 1 = No extent; Don't know = 8

| SCS-State | SCS-Area | SCS-Dist. | DC's | BOS | Inspectors | Land Owners |
---|---|---|---|---|---|---|

22. What specific services, resources, or support does your agency depend on from this other agency?

Specify: SCS-State

| SCS-State | Money | Information | Staff support | Equipment | Other (specify) |
---|---|---|---|---|---|

| SCS-Area |
---|---|

| SCS-Dist. |
---|---|

| Dist. Comm. |
---|---|

| BOS |
---|---|

| Inspectors |
---|---|

| Land Owners |
---|---|
23. In order for _______ (other agency) to achieve its objectives, relative to watershed maintenance, to what extent does it depend upon services, resources, or support from your agency?

5 = Great extent; 4 = Considerable extent; 3 = Some extent; 2 = Little extent; 1 = No extent; Don't know = 8

<table>
<thead>
<tr>
<th>SCS-State</th>
<th>SCS-Area</th>
<th>SCS-Dist.</th>
<th>DC's</th>
<th>BOS</th>
<th>Inspectors</th>
<th>Land Owners</th>
</tr>
</thead>
</table>

24. What specific services, resources, or support does _______ (other agency) receive from your agency for watershed maintenance activities?

Specify: SCS-State

<table>
<thead>
<tr>
<th>Specified</th>
<th>Money</th>
<th>Information</th>
<th>Staff Support</th>
<th>Equipment</th>
<th>Other (specify)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCS-Area</td>
<td></td>
<td></td>
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<tr>
<td>SCS-Dist.</td>
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</tr>
<tr>
<td>Dist. Comm.</td>
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<tr>
<td>BOS</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Inspectors</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Land owners</td>
<td></td>
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</tr>
</tbody>
</table>

25. To what extent do you and the person you work with _______ agree on:

<table>
<thead>
<tr>
<th></th>
<th>SCS-State</th>
<th>Area</th>
<th>Dist</th>
<th>DC's</th>
<th>BOS</th>
<th>Inspectors</th>
<th>Land Owners</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. The need for soil and water conservation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. The importance of proper and regular maintenance of structures?</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>C. Who should be responsible for routine maintenance of structures?</td>
<td></td>
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<td></td>
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<tr>
<td>D. Who should be responsible for major maintenance of structure?</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>E. How maintenance activities should be financed?</td>
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</tr>
</tbody>
</table>

4 = Strongly agree; 3 = Somewhat agree; 2 = Somewhat disagree; 1 = Strongly disagree; 8 = Never discussed
26. How much cooperation do you receive from _____ with regard to handling the maintenance of watershed structures? (probe if response is 1 or 2)

<table>
<thead>
<tr>
<th>SCS-State</th>
<th>SCS-Area</th>
<th>SCS-Dist.</th>
<th>DC's</th>
<th>BOS</th>
<th>Inspectors</th>
<th>Land Owners</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 = Great amount; 4 = Considerable amount; 3 = Some; 2 = Little; 1 = None</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

27. Relative to watershed maintenance, to what extent has _____ (the other organization) carried out the commitments to your agency that it initially agreed to?

<table>
<thead>
<tr>
<th>SCS-State</th>
<th>SCS-Area</th>
<th>SCS-Dist.</th>
<th>DC's</th>
<th>BOS</th>
<th>Inspectors</th>
<th>Land Owners</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 = Almost always; 4 = Most of the time; 3 = Some of the time; 2 = Little of the time; 1 = Almost never; 0 = No commitments made</td>
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</tbody>
</table>

Comments:

28. Overall, to what extent are you satisfied with the relationship between your agency and _____ regarding watershed maintenance?

<table>
<thead>
<tr>
<th>SCS-State</th>
<th>SCS-Area</th>
<th>SCS-Dist.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 = Great extent; 4 = Considerable extent; 3 = Some extent; 2 = Little extent; 1 = No extent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments: (Why or why not; how could the relationship be improved?)
Now, I would like to read you several statements regarding watershed maintenance. Please tell me if you strongly disagree, disagree, agree or strongly agree with the statement.

29. Fulfilling watershed maintenance agreements has been difficult because of changing organizational expectations. Which organizations?  
   DC's  
   BOS  
   inspectors  
   Land Owners  
   Comments: (Why or why not; how could the relationship be improved?)  

30. Fulfilling watershed maintenance agreements has been difficult because of landowner apathy and lack of cooperation.

31. Funding uncertainties of local sponsors makes it difficult to carry out implementation of maintenance agreements?

32. Limitations on local expertise makes it more difficult to carry out implementation of maintenance agreements?

33. Other program priorities for local sponsors makes it more difficult to carry out implementation of maintenance agreements?

34. Our present legal authority makes it more difficult to carry out maintenance agreements?

35. Certain factors may prevent organizations from working together effectively. What do you think is the most serious barrier to proper maintenance of watershed structures?
I am going to ask you about some factors that may affect working relationships among organizations for the maintenance of watershed structures.

36. Is lack of time within your agency a:
   2 = Serious problem  1 = Somewhat of a problem, or  0 = No problem

37. Is potential loss of independence in your own decision making a:
   2 = Serious problem  1 = Somewhat of a problem, or  0 = No problem

38. Organizations have different decision-making structures, such as a line organization as compared to a local committee system. Are these differences a:
   2 = Serious problem  1 = Somewhat of a problem, or  0 = No problem

39. Is lack of adequate training for landowners regarding proper maintenance of watershed structures a:
   2 = Serious problem  1 = Somewhat of a problem, or  0 = No problem

40. Is the unwillingness of others to cooperate a:
   2 = Serious problem  1 = Somewhat of a problem, or  0 = No problem
   If 1 or 2, which organizations:

Perceptions of Conservation Issues and Responsibilities

41. a) Some describe a conservation ethic as assuming responsibility for preserving the capacity of the land to renew itself. How would you describe a conservation ethic?

   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

   b) What are some examples of activities which are consistent with your understanding of a conservation ethic?

   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
c) What does land mean to you? For some, land is merely an input of commodity production. For others, land is a living organism which has meaning and function beyond mere commodity production. On a scale from 1 to 10, with 1 being land merely as an input of commodity production and 10 being land as a living organism, where would you fall?

<table>
<thead>
<tr>
<th>Input</th>
<th>Living organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

42. What impact has the 1985 Farm Bill had on the maintenance of watershed structures in your county?

43. When farmers make management decisions about what they will produce and how they will produce it, what importance do each of the following have for influencing that decision? Is the factor:

1 = irrelevant, 2 = not really important, 3 = important, 4 = very important, 5 = essential

- Maintaining personal independence
- Maintaining the future viability of the farm
- Increasing income
- Responding to market demand
- Impact on the environment

I'm going to read some examples of costs that might be incurred by farmers when practicing soil and water conservation. Please tell me how much responsibility landowners (LO), local government (LG), state government (SG), and Federal government (FG), should have for the costs of the following soil conservation practices? (Circle the one who has prime responsibility.)

44. Conservation land treatment (e.g., building of terraces)  

<table>
<thead>
<tr>
<th>LO</th>
<th>LG</th>
<th>SG</th>
<th>FG</th>
</tr>
</thead>
</table>

45. Building of large water and grade control structures (dams)

<table>
<thead>
<tr>
<th>LO</th>
<th>LG</th>
<th>SG</th>
<th>FG</th>
</tr>
</thead>
</table>

46. Purchase of conservation tillage equipment

<table>
<thead>
<tr>
<th>LO</th>
<th>LG</th>
<th>SG</th>
<th>FG</th>
</tr>
</thead>
</table>

47. Reduced profits and increased tax liability because all land is not in production

<table>
<thead>
<tr>
<th>LO</th>
<th>LG</th>
<th>SG</th>
<th>FG</th>
</tr>
</thead>
</table>

4 = Total responsibility; 3 = Some; 2 = Little; 1 = No responsibility
Now I have some examples of costs that might be incurred because soil conservation is not practiced. How much responsibility do each of the following have for paying the costs of not practicing soil conservation? (Circle the one who has prime responsibility.)

48. The need to increase the amount of chemical fertilizer inputs to compensate for reduced productivity due to top soil loss.

49. The treatment of ground and surface water polluted by agricultural chemicals.

50. The cleaning of sediment from ditches.

51. The construction of erosion and flood control devices.

52. Property damage from flooding.

4 = Total responsibility; 3 = Some; 2 = Little; 1 = No responsibility

53. To what extent does society, and to what extent do farmers/landowners have a responsibility to protect soil resources for future generations? On a ten point scale, where "one" assigns total responsibility to society, "five" is joint sharing and "ten" assigns total responsibility to landowner/farm operator.

<table>
<thead>
<tr>
<th>society</th>
<th>joint</th>
<th>landowner</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

54. What things should society be doing to protect soil resources?

55. What things should farmers/landowners be doing, that they are not now doing, to protect soil resources?
56. What has been the primary motivating force responsible for changes in cropping practices and livestock management over the past 10-15 years?

57. What has been the result of these changes for watershed structures?

I have some general questions about the interrelationships between agriculture, soil conservation, and society that I would like to talk to you about. Do you strongly disagree, disagree, agree, or strongly agree with the following statements and why?

58. Conservation is a local/landowner issue and the federal government should stay out of it.

59. Because taxpayers benefit from conventional farming practices with cheap food, they should bear the expense of repairing the soil erosion that results from these practices.

60. The federal government has the responsibility to safeguard the public's investment in soil erosion control devices by ensuring that they are used and maintained properly.

61. The American farmer works primarily for himself and hence can use his land as he sees fit to maximize his profit.
62. Because agriculture is dependent upon the environment, farm operations should be regulated to minimize damage to the environment.  

<table>
<thead>
<tr>
<th></th>
<th>SD</th>
<th>D</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

63. Because agriculture provides a needed service to society - quality food at a cheap price - farm operations should be regulated to ensure that this service is maintained in a way that benefits all of society.  

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<th>SD</th>
<th>D</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</table>

64. Farmers should be compensated for adopting soil conservation practices that are environmentally sound, but may be economically unprofitable.  

<table>
<thead>
<tr>
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<th>SD</th>
<th>D</th>
<th>A</th>
<th>SA</th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
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</tbody>
</table>
Local Landowner Survey

Farm Operation and Local Landowner Characteristics

1. I would like to get some background information about your and your farming operation.

2. Are you now or have you ever been a Soil Conservation District Commissioner? If Yes, what years.

3. Please indicate your 1988 cropping areas:

<table>
<thead>
<tr>
<th>Crop Type</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Row crops</td>
<td></td>
</tr>
<tr>
<td>Set aside</td>
<td></td>
</tr>
<tr>
<td>Conservation Reserve Program (CRP)</td>
<td></td>
</tr>
<tr>
<td>Hay/Pasture</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

   Total Acres Owned:       ___________  
   Total Acres Rented:      ___________  
   TOTAL ACRES FARMED:     ___________

4. Total acres in conservation watershed structures: ___________

5. Livestock Inventory

<table>
<thead>
<tr>
<th>Livestock Type</th>
<th>Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swine (# marketed in past year)</td>
<td></td>
</tr>
<tr>
<td>Beef (January 1 Inventory</td>
<td></td>
</tr>
<tr>
<td>Stock cows</td>
<td></td>
</tr>
<tr>
<td>Feedlot steers/halfers</td>
<td></td>
</tr>
<tr>
<td>Dairy: Milking herd</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

6. Age ___________

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 years or less</td>
<td>1</td>
</tr>
<tr>
<td>31 to 49 years</td>
<td>2</td>
</tr>
<tr>
<td>50 to 64 years</td>
<td>3</td>
</tr>
<tr>
<td>65 or older</td>
<td>4</td>
</tr>
</tbody>
</table>
7. Formal Education _______

<table>
<thead>
<tr>
<th>Level</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some high school or less</td>
<td>1</td>
</tr>
<tr>
<td>High school graduate</td>
<td>2</td>
</tr>
<tr>
<td>Vocational training</td>
<td>3</td>
</tr>
<tr>
<td>Some college</td>
<td>4</td>
</tr>
<tr>
<td>College graduate or more</td>
<td>5</td>
</tr>
</tbody>
</table>

8. How many watershed structures are on land you own or manage? ____________

9. How long have you been farming this land? ____________

10. Is the land on which the structures are located owned by you or rented from someone else? ____________

11. When were the structures built? ____________________________

12. Why were the structures built? ____________________________

13. Are these structures necessary? ____________________________

14. Whose structures are they? Yours or the government's? ____________________________

15. When the structures were built or when you became responsible for this land were you instructed how to perform the routine maintenance required to keep the structures operating effectively? ____________ (Yes/NO)

16. If YES, by whom? ____________________________

17. What instructions were you given? ____________________________
Awareness and Perceptions of Operation and Maintenance Agreements

I have several general questions that I would like to ask you about the operation and maintenance of watershed structures which are in your county.

18. Are you familiar with the operation and maintenance (O&M) agreement existing between the Soil Conservation Service and local sponsors in your county? __________
   1 = Yes 0 = No

19. Who are the local sponsors in your county?
   Board of Supervisors
   Conservation District
   Other

20. Is there a signed maintenance agreement with the local sponsors for the watershed structures on your land?
   __________ (yes/no) If YES, Who signed it?

21. How well do you feel the watershed structures are being maintained in your county?

22. Are there maintenance operations required that you consider to be beyond the expertise or financial capability of the local sponsors?

23. If YES, what are they?

24. In your county, how is maintenance of watershed structures financed?

25. In your county, how may funds be raised to finance maintenance of watershed structures? (probe: what other options exist?)

26. How do you think maintenance of structures in your county could be improved?
27. How is information about your structures and responsibility for maintaining them transferred from one generation or owner to another?

28. What continued training and support have been provided to help you maintain these structures?

29. What additional training or information would be helpful?

30. Please give some examples of maintenance activities for the structures on your land. Who is currently doing the activity? Who do you feel should be doing the activity? Who do you feel should pay for it?

<table>
<thead>
<tr>
<th>Maintenance activities</th>
<th>Who is doing</th>
<th>Who should be doing</th>
<th>Who should pay</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

31. What have been your average annual costs to maintain these structures?

32. Have you paid into a maintenance fund?  (Yes/No)
   a. If YES, how much?  
   b. Was it a one time cost paid at the time of construction or is it paid on a regular basis?
      One time  Regular  
   c. Do you still have maintenance responsibilities?  (Yes/No)
d. Why/Why not?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
e. If yes, what should those responsibilities be?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

33. What prevents you from making needed repairs?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

34. Compared to all your other activities, how high a priority do you give to watershed structure maintenance? In terms of your overall time and resource commitment would you say these activities receive: ____________________

5 = Very high priority
4 = High priority
3 = Average priority
2 = Low priority
1 = Very low priority

35. Should SCS fund the maintenance and repair of your watershed structures? ______________

Why/Why not?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
36. If not, who should?

_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________

37. How often are your watershed structures inspected by?

<table>
<thead>
<tr>
<th>By whom</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmer/Landowner (you)</td>
<td></td>
</tr>
<tr>
<td>The Inspector</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

38. What happens during the inspection process?

_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________

39. Are you provided with the results of the inspection? ____________ (Yes/No)

If YES, what actions are taken by you in response to the inspection report?

_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________

40. Has the 1985 Farm Bill had any impact on the maintenance of watershed structures on your land? ____ (Yes/No)

If so, what?

_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________

41. How might it in the future?

_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________

42. Should land that is taken up by terraces and other conservation uses be taxed as agricultural land?

_________________________________________________________________________________
Interagency Coordination

As you probably know, several agencies along with landowners are involved with the planning, implementation and maintenance of watershed structures in your county. These include: The Soil Conservation Service District Conservationist, the Soil Conservation District Commissioners, and the County Board of Supervisors. I would like to ask you several questions about these agencies and your relationship with them.

43. a) Which agencies do you think determine the priorities for watershed maintenance activities in your county? Please list them in the order of importance.

b) Which agencies do you think should determine the priorities for watershed maintenance activities?

a) 1. ________________  2. ________________  3. ________________

b) 1. ________________  2. ________________  3. ________________

44. In your opinion, how well do these agencies work together? If they work well together, WHY. If they do not work well together, WHY NOT.

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

45. In 1988, did you attend any formal meetings with ____________ to specifically discuss maintenance of your watershed structures?

0 = No  1 = Yes

SCS-State  SCS-Area  SCS-Dist  DCs  BOS inspectors

46. People also get together informally to discuss problems. How many times during the past 12 months did you meet to talk informally with ____________ to discuss maintenance of your watershed structures?

SCS-State  SCS-Area  SCS-Dist  DCs  BOS inspectors

47. How well informed are you about the specific responsibilities and objective of ____________ as they related to watershed structure maintenance and the O&M agreement?

5 = Very well informed, 4 = Quite well, 3 = Somewhat informed, 2 = Little informed, 1 = Not at all informed

SCS-State  SCS-Area  SCS-Dist  DCs  BOS inspectors
48. To what extent do you and the person you work with in ________ agree on:

<table>
<thead>
<tr>
<th></th>
<th>State SCS</th>
<th>Area SCS</th>
<th>Dist SCS</th>
<th>DC's</th>
<th>BOS</th>
<th>Inspectors</th>
<th>Land Owners</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. The need for soil and water conservation</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>B. The importance of proper and regular maintenance of structures?</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>C. Who should be responsible for routine maintenance of structures?</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>D. Who should be responsible for major maintenance of structure?</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
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<tr>
<td>E. How maintenance activities should be financed?</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
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</tr>
</tbody>
</table>

4 = Strongly agree; 3 = Somewhat agree; 2 = Somewhat disagree; 1 = Strongly disagree; 0 = Never discussed

49. How much cooperation do you receive from ________ with regard to handling the maintenance of your watershed structures? (Probe, if response is 1 or 2)

<table>
<thead>
<tr>
<th></th>
<th>SCS-State</th>
<th>SCS-Area</th>
<th>SCS-Dist</th>
<th>DC's</th>
<th>BOS</th>
<th>Inspectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 = Great amount</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>4 = Considerable amount</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>3 = Some</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>2 = Little</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>1 = None</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
</tbody>
</table>
50. Relative to watershed maintenance, has carried out the commitments to you that it initially agreed to?

   5 = Almost always, 4 = Most of the time, 3 = Some of the time,
   2 = Little of the time, 1 = Almost never, 0 = No commitments made

<table>
<thead>
<tr>
<th></th>
<th>SCS-State</th>
<th>SCS-Area</th>
<th>SCS-Dist.</th>
<th>DC's</th>
<th>Inspector</th>
<th>BOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

51. Overall, to what extent are you satisfied with the relationship between yourself and regarding maintenance of watershed structures?

   5 = Great extent, 4 = Considerable extent, 3 = Some extent, 2 = Little extent, 1 = No extent

<table>
<thead>
<tr>
<th></th>
<th>SCS-State</th>
<th>SCS-Area</th>
<th>SCS-Dist.</th>
<th>DC's</th>
<th>Inspector</th>
<th>BOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comments: (Why/Why not - how could the relationship be improved)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Perceptions of Conservation Issues and Responsibilities

52. a) Some describe a conservation ethic as assuming responsibility for preserving the capacity of the land to renew itself. How would you describe a conservation ethic?

   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
b) What are some examples of activities which are consistent with your understanding of a conservation ethic?

__________________________________________________________________________

__________________________________________________________________________

c) What does land mean to you? For some, land is merely an input of commodity production. For others, land is a living organism which has meaning and function beyond mere commodity production. On a scale from 1 to 10, with 1 being land merely as an input of commodity production and 10 being land as a living organism, where would you fall?

<table>
<thead>
<tr>
<th>Input</th>
<th>living organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

53. As a landowner/farmer, which of the following conservation practices do you use?

- [ ] Maintain grassed waterways in the fields
- [ ] Practice conservation tillage
- [ ] Use no-till
- [ ] Use terraces where needed
- [ ] Practice contour farming
- [ ] Practice contour stripcropping
- [ ] Use crop rotations
- [ ] Build grade stabilization structures where needed
- [ ] Maintain wildlife habitat
- [ ] Keep chemical inputs to a minimum
- [ ] Other

54. When you make management decisions about what you will produce and how you will produce it, what importance do each of the following have for influencing that decision? Is the factor:

1 = Irrelevant, 2 = not really important, 3 = important, 4 = very important, 5 = essential

- [ ] Maintaining personal independence
- [ ] Maintaining the future viability of the farm
- [ ] Increasing income
- [ ] Responding to market demand
- [ ] Impact on the environment
I'm going to read some examples of costs that might be incurred by you when practicing soil and water conservation. Please tell me how much responsibility landowners (LO), local government (LG), state government (SG), and Federal government (FG), should have for the costs of the following soil conservation practices? (Circle the one who has prime responsibility.)

<table>
<thead>
<tr>
<th>Practice</th>
<th>LO</th>
<th>LG</th>
<th>SG</th>
<th>FG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation land treatment (e.g., building of terraces)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building of large water and grade control structures (dams)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchase of conservation tillage equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduced profits and increased tax liability because all land is not in production</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4 = Total responsibility; 3 = Some; 2 = Little; 1 = No responsibility

Now I have some examples of costs that might be incurred because soil conservation is not practiced. How much responsibility do each of the following have for paying the costs of not practicing soil conservation? (Circle the one who has prime responsibility.)

<table>
<thead>
<tr>
<th>Practice</th>
<th>LO</th>
<th>LG</th>
<th>SG</th>
<th>FG</th>
</tr>
</thead>
<tbody>
<tr>
<td>The need to increase the amount of chemical fertilizer inputs to compensate for reduced productivity due to top soil loss.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The treatment of ground and surface water polluted by agricultural chemicals.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The cleaning of sediment from ditches.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>The construction of erosion and flood control devices.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Property damage from flooding.</td>
<td></td>
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<td></td>
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</tbody>
</table>

4 = Total responsibility; 3 = Some; 2 = Little; 1 = No responsibility
64. To what extent does society, and to what extent do farmers/landowners have a responsibility to protect soil resources for future generations? On a ten point scale, where "one" assigns total responsibility to society, "five" is joint sharing and "ten" assigns total responsibility to landowner/farm operator.

<table>
<thead>
<tr>
<th>society</th>
<th>joint</th>
<th>landowner</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td></td>
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</tbody>
</table>

65. What things should society be doing to protect soil resources?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

66. What things should farmers/landowners be doing, that they are not now doing, to protect soil resources?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

67. What has been the primary motivating force responsible for changes in cropping practices and livestock management over the past 10-15 years?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

68. What has been the result of these changes for watershed structures?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

I have some general questions about the interrelationships between agriculture, soil conservation, and society that I would like to talk to you about. Do you strongly disagree, disagree, agree, or strongly agree with the following statements and why?

69. Conservation is a local/landowner issue and the federal government should stay out of it.

<table>
<thead>
<tr>
<th>SD</th>
<th>D</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

________________________________________________________________________
70. Because taxpayers benefit from conventional farming practices with cheap food, they should bear the expense of repairing the soil erosion that results from these practices.

71. The federal government has the responsibility to safeguard the public's investment in soil erosion control devices by ensuring that they are used and maintained properly.

72. The American farmer works primarily for himself and hence can use his land as he sees fit to maximize his profit.

73. Because agriculture is dependent upon the environment, farm operations should be regulated to minimize damage to the environment.

74. Because agriculture provides a needed service to society - quality food at a cheap price - farm operations should be regulated to ensure that this service is maintained in a way that benefits all of society.

75. Farmers should be compensated for adopting soil conservation practices that are environmentally sound, but may be economically unprofitable.

76. Pressure from my friends and neighbors makes it difficult for me to adopt good soil conservation practices.