COMMUNITY DECISION MAKERS' ATTITUDES TOWARD AGENCY PROGRAM EFFECTIVENESS

Dissertation for the Degree of Ph. D.

MICHIGAN STATE UNIVERSITY
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1973

ABSTRACT

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By

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Little is known of the relationship between the success of a development program and the attitudes toward that program held by the participating local decision makers. Program achievement may be a function of local decision makers attitudes toward program effectiveness. Negative attitudes may hinder actual program outcomes while positive attitudes may, in fact, lead to or promote program success. Moreover, to determine and explain the attitude forming process based upon antecedent socio-economic characteristics, roles, membership and other beliefs and opinions would be of value to agency performance in program implementation. Attitudes are considered as one measure of program outcome. Other more precise measures are recognized but not used within the scope of this study.

As part of a larger evaluation project sponsored by the Economic Research Service (ERS) of the U.S. Department of Agriculture, this study has as its principle objective to determine the overall relationship between various socio-economic characteristics and positive attitudes toward

program effectiveness. Dealing specifically with the Northwest Michigan Resource Conservation and Development Program (RC&D) the attempt was made to quantify the socio-economic indicators of local decision makers within the thirteen county project region and find causal relationships between antecedent variables and attitudes.

To accomplish those objectives the data used in this study was provided by the Economic Research Service. The ERS gathered the data through individual personal interviews with the seventy-two county RC&D leaders in the Autumn of 1971. These local decision makers were members of county steering committees and represented each of the thirteen counties within the region. The results of the questionnaire survey yielded a total of three-hundred and sixty-eight variables that were used in further analysis.

It was hypothesized, based upon a review of pertinent literature, that there is a positive relationship between socio-economic characteristics of the decision makers or respondents, their role relations, reference groups, their environmental perceptions and positive attitudes toward program effectiveness.

In order to test the hypothesis several statistical techniques were used. To reduce the number of variables to meaningful size simple cross-tabulation and correlation analysis were performed upon all the data. From this, significant variables were chosen and further analyzed as to their relationship to positive attitudes by the method

of canonical correlation. Canonical correlation involves the maximum correlation of sets of variables. One set, the dependent variables, consisting of seventeen closely related attitudes representing opinions of program effectiveness, was correlated to five different sets of independent variables representing socio-economic and other characteristics and opinions. A sixth independent set of variables was chosen from the results of the first five canonical correlations and computed again with variables in the constant dependent set. As a check on the method of variable selection for canonical correlation analysis, factor analysis was employed as a means of isolating significant variables from the total of three-hundred and sixty-eight variables. The results of factor analyzing the variables were then used as an independent set of variables of a final canonical correlation.

The results of both methods were similar. The method of canonical correlation analysis provided insight into the complex concept of attitudes toward program effectiveness by yielding results in weighted coefficients or measures of association between variables and sets of variables. From the results, equations relating positive attitudes toward program effectiveness and the variables representing socio-economic and other characteristic indicators were constructed. The models suggests that positive attitudes toward program effectiveness held by the steering committee decision makers in the Northwest Michigan RC&D Program are most closely

associated with the characteristics of length of: residence within the State (the longer the period of residence; the likelihood of positive opinions increases; the occupation of farming; roles related to the Soil Conservation Districts; lower than average educational achievement (did not complete high school); higher than average income (over $11,000); and, membership in organizations focusing upon transportation and land related problems.

The study calls for further research to test the model construction through the use of canonical analysis. Further it is suggested that additional research correlate actual program outcomes to attitudes, perceptions and problem recognition held by the decision makers in order to test the validity of the decision makers' attitudes in relation to program achievement.

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Resource Development

1973

ACKNOWLEDGMENTS

Major gratitude is extended to: my major professor and graduate advisor, Professor William J. Kimball, for his continued advice and counsel throughout the preparation of this report and my period of residence at Michigan State; Professors Milton Steinmueller and Manfred Thullen for their advice and suggestions; and Professor Stanley Brunn for his continued counsel concerning the many aspects of methods of analysis used in this study.

Special appreciation is extended to the Economic Research Service, U.S. Department of Agriculture, both for financial support and interest to make this study possible. Very special acknowledgment is due to Mr. David Carvey, Project Leader of the RC&D evaluation project, ERS, USDA, for his suggestions and constructive criticism throughout the entire study. Further thanks are given to Mr. John Putman, Leader, North Central Resource Group, ERS, and Ms. Priscilla Prophet, Computer Programmer, ERS, for their aid.

To all those people who provided ideas, criticisms and thought to directly influence the study I offer my thanks.

And certainly, my most sincere appreciation is extended to an understanding and encouraging women - my wife, Sandy.

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CHAPTER I

INTRODUCTION

Problem Statement

In the past, local development, growth or decline were affairs primarily of the locale. These matters were endemic in nature and their solution most often rested upon the activities of the community itself.

Now, however, development inadequacies are no longer considered to be essentially a local concern. Recently it has been recognized that healthy, viable communities or regions are in the total national interest. James L. Sundquist recognized three phases through which public attitude passes as internal development problems come to public attention. At first, the problem is viewed by the community as theirs alone and not of national concern. Later, as the problem persists and local communities or states realize that they are unable to solve the problem, federal aid is proposed. Nevertheless, in this phase the various communities still see the issue as essentially local. In the final stage, the locus of

responsibility can shift from local to the national level with all concerned realizing that a solution requires a national effort.[1]

Since the early 1960's it is not rare that extra-local agencies have made entry into what were originally community issues. Questions arise, however, as to whether these outside agencies are working in the locale or of the locale. Several studies have suggested that there is a significant difference between an outside agency in the community or an outside agency of the community. Dasgupta and Wilkinson, when speaking specifically of watershed development, but of equal applicability to all development programs, claim that widespread participation of local residents in program planning, organization and implementation is critical in gaining positive local support and linking development to the social structure. They further claim that such support and linkage are often ignored by technical and planning agencies.[2]

The problems associated with an agency merely working in the community focusing primarily upon the project with

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[1]James L. Sundquist, Making Federalism Work (Washington: The Brookings Institution, 1969), 11.

[2]Satadal Dasgupta and Kenneth P. Wilkinson, "Local Participation in Watershed Development: A Comparative Study of Two Communities," Proceedings of Third Annual American Water Resources Conference (San Francisco, 1967), 396-404.

little or no commensurate knowledge of the perceptions and attitudes of local people appear to be extremely important as more and more responsibility is ceded to state and federal agencies. With a development program deeply involved as an integral part of the community, chances of positive association with that community are much greater than in situations in which the program is partly or wholly organized and implemented by outside agencies with a minimum of local participation. Dasgupta and Wilkinson have shown that the consequences of agency solicitude or disregard can spell the success or failure of development programs through local attitudes.[1] Positive or negative views of local residents toward the objectives and goals as well as the effectiveness of the program may, in fact, determine actual program outcomes.

This study will attempt to critically analyze the attitudes of local participants within an on-going development program (The Northwest Michigan Resource Conservation and Development Program). Specifically, the attitudes of program effectiveness will be studied as a measure of program achievement. The assumption is made that such attitudes toward the effectiveness of the program can be used as indicators of program outcomes but it is also recognized that such an assumption is not based upon an

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[1] Ibid.

independent measure of program achievement. Other more direct measures of program achievement, although not within the scope of this study, could include: the actual number of project achievements as measured by proposal adoption, implementation and completion of specific projects within the overall framework of RC&D; the achievement of stated goals set forth by the Project Steering Committee and the sponsoring agency, and; precise measures of achievement such as the number of new jobs, number of recreation sites added, amount of acreage converted to woodlots and many other measures of similar nature.

Attitudes of program effectiveness, however, are the focus of this study and should, at this point, be clearly defined in order to establish a conceptual base of definitional constructs used throughout the remainder of the report. The term "attitudes" can be used interchangeably with "belief" or "opinion" to describe some particular preference held by an individual or collectively in a group toward an object, concept or outcome of some action.[1] For the purposes of this study this definition can be further expanded to include the idea that attitudes are a "... system of three components centering about a single object:

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[1]Gilbert F. White, "Formation and Role of Public Attitudes," Environmental Quality in a Growing Economy (Baltimore: The Johns Hopkins Press for Resources For the Future, Inc., 1966), 108.

the beliefs about the object - the cognitive component; the affect connected with the object - the feeling component; and the disposition to take action with respect to the object - the action tendency component."[1] Such preferences and beliefs are rooted in core values, the basic values determining the individual's perception of all things. In turn, the individual or group reacts to all things - the environment - in a way commensurate with those perceptions. The result is an environment, program or setting that reflects attitudes and perceptions. In other words, individuals acting collectively in a group create the environment in which they operate based upon the components of attitudes.

"Effectiveness" can be defined as the state of being effective or producing an efficient or decisive effect. Attitudes of program effectiveness, then, are beliefs or opinions describing the relative efficiency or effect of the program in terms of its stated objective.

The above definition of attitudes toward program effectiveness is the basis for further consideration of attitude explanation. To determine and explain the attitudes toward program effectiveness can be of value in program analysis. Explanation of attitudes toward the

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[1]David Krech, Richard Crutchfield and Egerton L. Ballachey, Individual in Society (New York: McGraw-Hill, Inc., 1962), 146.

effectiveness of a development program can also be of value to agency performance in program implementation. The approach of determining public attitude and adjusting agency policy to public opinion is one way of utilizing public opinion for agency benefit. Such an approach is not new. It has been shown that there has been a long tradition of using survey data in relation to social policy. In fact, the results of attitude surveys are very commonly seen as appropriate when decisions or recommendations are to be made on matters of social policy.[1]

Attitudes can also play a less obtrusive role in decision making. White said that attitudes enter into decision making in three ways. There are the personal attitudes of the people sharing in the decision. There are opinions as to what others prefer and there are opinions as to what others should prefer.[2] These three influences upon decision making rarely coincide but it is recognized that there is a tendency for both personal attitudes and normative, i.e., what ought to be, to merge.

The idea of "what ought to be" is not only a component of attitudes but is often the concern of the sponsoring agency in development programs. Such concerns, from the point-of-view of this study, involve considerations

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[1]Jennifer Platt, "Survey Data and Social Policy," The British Journal of Sociology, Vol. 23 (1972), 77-92.

[2]White, 109.

of organization both within the community and within the agency. When the use of attitudes as measures of program achievement do not coincide with the agency's concept of what ought to be, organizational change should be considered.

Alvin Toffler aptly pointed out, "...organization change - a self renewal, is a necessary and unavoidable response..."[1] In addition, he suggested that any organization is nothing more than a collection of human objectives, expectations and obligations, or a structure of roles filled by humans. It follows that a rearrangement of these roles can create a new structure.[2] It seems reasonable to assume that rearranging roles, readjusting social and economic variables to enhance attitudes of program effectiveness is feasible if the correct combination of variables can be determined. Here again, according to Toffler, the approach is not new. He cites many examples of "project management teams" - ad hoc groups assigned to solve particular problems in specified time periods.[3]

Meeting today's demands for organizational structures amenable to the task of problem solving arises directly out of the pace at which new and first-time problem situations arise. Achieving local participation at a high level of

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[1]Alvin Toffler, Future Shock (New York: Random House, 1970), 130.

[2]Ibid., 127.

[3]Ibid., 132.

involvement in development program decision making, it is agreed, is of prime importance to the technical or planning agency. However, structuring the local decision making body to enhance positive opinions and hence outcomes is not as easily accepted as the pace of change would suggest. Vested interests, social values and tradition are the intervening variables that make organizational restructuring at the local decision making level more difficult. Yet such a systems management approach can provide a social setting for program success. On the other hand, it can easily be argued that this form of social management strategy can suggest a depreciative form of social manipulation. Nevertheless, finding the critical variables is possible with relatively simple analysis and prediction techniques. Adjusting these variables to effect attitudes, then, is allowed through program organization.

This study recognizes the problems of agency concern for local participation in development programs and will seek to discover the relationship between the opinions held by the decision makers within an on-going development program and the socio-economic characteristics of those decision makers. The results of this research could be implemented by development agencies to help solve problems of local participation and negative attitudes related to the program goals and actual program achievement. In addition, the results of this study can provide development agencies with the quantification of useful information

never before available to personnel responsible for the guidance of an on-going development effort.

Problem Setting and Historical Perspective

The number of people in rural areas of the United States has been declining for many decades. In the 1950's more than half of the counties in the nation lost population and the majority of those showing population loss were rural.[1] The main thrust of rural-urban migration was prominantly noticeable on a nation-wide basis after 1935 when total numbers and proportions of farm population to total population steadily dropped to the present low of less than 5%.

The reasons, of course, are many. Not the least of which was an unresponsive market and consequent unmet demands for higher farm profit margins. Meanwhile, mechanization of agriculture freed a large portion of the agricultural labor force and the new entrants into the job market turned to the growing industries. The non-agricultural industries were, for the most part, located in the cities and, as a result, the people moved to those growing metropolitan areas. Census figures show that during the 1950's some 6.7 million people moved from nonmetropolitan areas to metropolitan areas. This trend has continued throughout the 1960's.

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[1]Sundquist, 130.

This rural-urban migration might seem to have reduced employment pressure in rural areas but it did not solve the larger problems being experienced in most rural counties. In fact, rural America, particularly the South and Appalachia, has the highest proportion of unemployed and underemployed. Moreover, rural areas, both farm and non-farm have, for the past few decades, had a higher proportion of families existing at the poverty level than in the much more obvious poverty areas in the urban sector. Commensurate with the statistical changes have been significant social changes. Increasing concentration of production and ownership, higher production and marketing costs and shifts to larger land holdings have been reshaping rural society to a degree not yet understood on a national scale. At the other end of the spectrum these rural changes have played a major role in reshaping urban society and in turn these same societal forces are at work in rural America but at a much different scale.

Responding to the appeal from the declining areas for help, coupled with the realization that regional and area development is in the total national interest, the national government in the past 15 years has been groping toward a policy of intervention to stimulate economic growth. Such wide range programs as will be mentioned later can have serious effect upon rural society. As life styles and social structure seem to be intrinsically tied to the economic structure of the group, any broad based efforts

in economic development will have commensurate effects in other non-economic realms.

The objective of community development at the federal level in rural areas has been the preparation and adoption of a comprehensive plan for simultaneously alleviating a wide range of community shortcomings and mobilizing the resources of many agencies at all levels both public and private. Several approaches have been attempted from stabilizing rural society to "keep'em down on the farm," to the promotion of growth centers to absorb the unemployed from depressed areas.

The efforts of the U.S. Department of Agriculture to promote local planning and development organizations aimed at comprehensive programs for economic growth and rural social stability extends back as far as 1955 when President Eisenhower first authorized the establishment of a rural development program. This is not to say that federal interest in rural areas did not exist prior to 1955. To the contrary, such federal programs as the Resettlement Administration (1934), Rural Electrification (1936), Rural Land Use Planning (1938) and the Farmers Home Administration (1946) were involved in rural development but operated within a specific program framework as opposed to comprehensive programs for social and economic growth. The Extension Service, too, has been involved in rural development since the Smith-Lever Act of 1914 created it.

But Extension's role has expanded over the years to meet changing needs. By the 1950's it too was and is now involved in comprehensive rural development and community development. By 1955, then, the focus of federal effort in rural development had shifted from specific program emphasis to that of local initiative to promote comprehensive development. The new rural development programs attempted to draw upon the resources of all concerned federal agencies in achieving their goals of economic growth and social stability.

The new program to grow from the new emphasis in the mid 1950's was known simply as the Rural Development Program. It was seen, at that time, as primarily a local program carried out by local leadership within the existing social structure. The federal agencies were to supply advice and technical assistance but local committees and social institutions were at the heart of any progress that might be forthcoming.

As a result of the startling changes experienced in rural areas in the previous decades the rural development program generally focused upon agriculture and land use. At the same time it was also concerned with industrial development in an attempt to ameliorate the growing unemployment problems.

The Kennedy Administration took rural development from its infancy and placed it in a position of highest priority in the Department of Agriculture. The new

administration renamed Rural Development to Rural Areas Development (RAD) and created a new office to carry out its function. During the same period, the rural areas were also made eligible to receive funds under the Area Redevelopment Act passed in 1961.

Administering this new authority was complicated. After jurisdictional disputes between departments it was finally decided that the U.S.D.A. would provide technical assistance to the program while the Department of Commerce would review loans and grant proposals.

By 1963, the Secretary of Agriculture, Orville L. Freeman, reported that rural development groups had been organized in 2/3 of the nation's counties with over 65,000 local people engaged in problem solving in their communities. But during these early years Freeman rejected the idea of establishing a new agency to handle the multiplicity of new funds, directions and areas. Rather, he organized the field personnel of the U.S.D.A. agencies already represented in most counties to handle the new task. Agencies such as Farmers Home Administration, Soil Conservation Service, Extension Service, and the Agricultural Stabilization and Conservation Service were organized into technical action panels with the job of coordinating the services of all department agencies and making these services available to the people.

Even as the Area Redevelopment Act was being passed in 1961 the U.S.D.A. concluded that the Act alone would not

provide the needed measures to revive most impoverished rural counties. It was shown that about 800 counties (¼ of all) in the nation were economically lagging behind the remainder of the nation. It was in such counties that commercial, community and private facilities had deteriorated and farmland was underutilized or abandoned. The situation in these counties was analogous to city slums and an effort was made to design a program of rural renewal.[1]

It was the Food and Agricultural Act of 1962 which gave the Department of Agriculture the authority for the program it called "rural renewal". The power of the new authority would be comparable to that of urban renewal agencies in planning, acquiring, developing and reselling land.

This program, Secretary Freemand told Congress, "would aid in developing new uses for land and water, create industrial parks, assist small farmers in farm consolidation ...and develop needed public facilities..."[2]

Most states, however, did not respond with necessary enabling legislation for rural renewal authorities as they

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[1] Ibid., 139-40.

[2] U.S. Congress, House, Committee on Agriculture, Food and Agricultural Act of 1962 Hearings, 87th Cong., 2d sess., 1962, p. 68.

had in authorizing urban renewal. As of 1968 only five rural renewal areas had been designated by the Secretary of Agriculture. These five areas comprised a mere twelve counties with a small amount of federal loans actually issued.

Under the same general language of the 1962 Food and Agricultural Act which had authorized rural renewal, the U.S.D.A. organized a second program: Resource Conservation and Development (RC&D). RC&D was a relatively late starter as compared to rural renewal. The Soil Conservation Service which provided the technical staff for each RC&D project had no difficulty finding sponsors for a new program that offered a new source of funds and opportunity for depressed rural areas.

Although the 1962 Act did not actually mention the program by name but simply gave the U.S.D.A. the authority to proceed at will, the final definition of RC&D was provided in a memorandum issued by the Secretary of Agriculture in 1962. The Secretary offered this definition:

> "RC&D: A locally initiated and sponsored project designed to carry out a program of conservation and utilization of land in areas where acceleration of current conservation activities plus the use of new authorities will provide additional economic opportunities to the people..."[1]

The basic objective of all Resource Conservation and Development projects is the focusing of various governmental

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[1]U.S. Department of Agriculture, Resource Conservation and Development Projects, Sec. Memorandum No. 1515 (Nov. 2, 1962).

efforts, both federal and state with primary federal responsibility, in certain problem areas. The aim of such attention is to bring about land use adjustments and commensurate economic development in the best interest of the local rural population.

The Soil Conservation Service, which administers the program, sees an orderly development and utilization of all resources as basic to the principle objective of RC&D. All of this is accomplished through the framework of local leadership. The local decision makers are placed in the position of coordinating the local human and natural resources in such a way as to facilitate the comprehensive development and utilization of these resources in keeping with the long-range community ambitions.

The S.C.S. as the departmental administrator, had the major responsibility for program implementation. S.C.S. wasn't alone in its efforts however. Further, the Secretary directed other agencies to assist an needed or as their contributions were feasible. More specifically, the work to be undertaken in this new federal effort borne so inconspicuously in the Secretary's memorandum was to complement and accelerate the related regular programs of all U.S.D.A. agencies as provided in Section 102 of the Food and Agricultural Act of 1962. "RC&D projects will include two or more contiguous counties in the same area...

to be developed and carried out under local initiative and leadership, and organized to assure a balance in economic growth and stability..."[1]

The above justification statement from the Appropriations Committee hearings added that the on-going regular programs will be continued at their normal rates. It was suggested that these new project activities would be in addition to and not in lieu of active programs and that appropriate land use adjustments in accordance with the needs of local people would be stressed wherever the program was instituted.[2]

Five points stand out in the various testimony and justification for the new authority's goals. They are:

1. Accelerated adjustments in land use and ownership to improve the economic stability of family farms;

2. Shift use of land from the production of crops now in over-abundance to suitable uses for which there are unmet demands, such as recreation, industry, roads and water supply;

3. Speed up the planning and application of sound soil, water and plant conservation treatments to protect and improve those resources for future use;

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[1]U.S. Congress, House, Committee on Appropriations, Hearings, before a subcommittee on appropriations for the U.S. Department of Agriculture, 88th Cong., 1964, Part 2, p. 1007.

[2]Ibid.

4. Provide additional employment in rural areas and thereby reduce undesirable migration to population centers already facing unemployment problems;

5. Above actions in rural areas will enhance the economy of the nation as a whole.

Underlying all of these aims, ends and objectives was the premise that RC&D projects would be locally initiated and locally sponsored. The success of each project would depend upon synchronized planning and action provided by local people with administrative and financial assistance provided by participating federal, state and local agencies. Corrollary to the public project activities, farmers, ranchers and other operators on private lands had available such things as technical assistance to facilitate physical improvements on their land. These same people also found local credit readily available to finance capital improvements.

A Soil Conservation Service review in 1962 resulted in a preliminary inventory of possible project areas. The inventory indicated 108 potential projects within 38 states. No explanation was given for the choice of the 108 potential project areas but the idea of local initiative together with other socio-economic considerations played a role in delineating them. Convincing Congress of the need for such a program to be added to U.S.D.A. efforts undoubtedly also played a role.

This local initiative factor was demonstrated in the

early days of the program even prior to appropriations. Letters from soil conservation district officials and other leaders indicated that local interest in the new form of developmental assistance was quite substantial.[1] The Soil Conservation Service acted upon this interest and potential and estimated a budget for fiscal 1964 of $6,275,000 in support of RC&D. These monies were to cover the basic objectives as outlined in the program proposals. In turn, this investment would create additional economic and employment opportunities within each project area.

Within the appropriations sub-committee and the Bureau of the Budget where budget restrictions were being imposed for 1964, the RC&D program was not on firm ground. Skepticism with regard to the usefulness of such a program within the cluttered field of area development left the fledgling program with an appropriation of only $1.5 million for its first year of operation. Further restraints were eventually placed upon the scope of the program itself when the budget was finally amended in Congress.

In reality, RC&D had a mere $425,000 to operate in 1964 (the remainder of the $1.5 million was held for use in fiscal 1965). The thinking in Congress was that the public interest might better be served by a pilot program approach at least for the first few years. As a result, the $425,000 was to be utilized in working with local leadership to develop long-range program proposals.

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[1] Ibid., 1055.

The pilot project stage was an interesting phase of the RC&D approach. The choice of the ten pilot projects is somewhat obscure but it followed this format: initially information pertaining to the new program was disseminated through the U.S.D.A.'s various agencies. Eventually about 20 applications were received from local areas representative of various parts of the country. Each of these applications was submitted through the Governor of the state in which the project was to take place. From the applications, the final designations of the ten pilot projects was made through a joint effort of S.C.S. and the Secretary of Agriculture's office. The criterion of choice was based primarily upon the strength of local initiative. As Secretary Freeman stated in his announcement of January 31, 1964, "These are local projects with Federal assistance, and our decision to approve applications was determined in large part by the readiness of local people to provide leadership and direction in the use of this new development tool."[1]

The ten pilot projects were characterized by several common features. Each consisted of two or more counties and all were sponsored by such local organizations as Soil and Water Conservation Districts, County Commissions, Town

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[1]U.S. Congress, House, Committee on Appropriation, Hearing before a subcommittee on appropriations for the U.S. Department of Agriculture, 88th Cong., 1965, p. 489.

Councils, State Parks Commissions and many other previously established development organizations.

Today there are over 70 operational RC&D projects in the fifty states. These projects are all locally initiated, sponsored and directed projects, "...designed to carry out a program of land conservation and land utilization, accelerated economic development, reduction of chronic unemployment or underemployment in an area where these activities are needed to foster a local agency."[1]

Specific objectives of the U.S.D.A. in the RC&D program include:

1. "The orderly development, improvement, conservation, and utilization of natural resources of the project area and thereby to provide employment and other economic opportunities to the people of the area."

2. "To provide to local leadership the opportunity to more fully coordinate and utilize the facilities and techniques available under current agricultural programs,...and any applicable new programs as may be instituted to aid in planning and carrying out a balanced program of development and conservation of natural resources to meet local, state, and national needs."

3. "The orderly extension of this Program, where needed, project by project as local leadership is able to effectively plan and carry out the activities necessary to achieve the goals of the Program."[2]

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[1]U.S. Department of Agriculture, Soil Conservation Service, Resource Conservation and Development Projects Handbook, June 1972.

[2]Ibid.

This study, being concerned with the RC&D effort, will focus upon one of the RC&D areas - Northwest Michigan.

In keeping with the U.S.D.A. objectives the Northwest Michigan RC&D Project was conceived by a small number of interested Soil Conservation Districts in the Summer of 1967. This nucleus fostered local interest and the RC&D region expanded to nine counties in the Northwest corner of Michigan's lower peninsula. An application for federal assistance was prepared under Soil Conservation Service guidance during January of 1968. Later that year, April 5, the application was endorsed by Governor George Romney and forwarded to the U.S. Department of Agriculture in Washington. The original application was approved in October of 1968.

Again interest in RC&D expanded to four adjacent counties. These four counties were added to the RC&D region by an amendment to the original application and endorsed by Governor William Milliken on March 21, 1969. The RC&D area now comprises a total area of 4,081,280 acres including the thirteen counties of Antrim, Benzie, Charlevoix, Emmet, Grand Traverse, Kalkaska, Lake, Leelanau, Manistee, Mason, Missaukee, Osceola and Wexford.[1]

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[1]U.S. Department of Agriculture, Soil Conservation Service, Northwest Michigan Resource Conservation and Development Project Plan, Lincoln, Nebraska: SCS, 1969.

Basically, the Northwest Michigan RC&D Project has as its goals to: help agriculture make its greatest contribution to the regional economy through wise land use planning and management of agricultural land; encourage woodland management in order to reduce erosion, improve woodland quality and increase local processing of forest products; provide watershed protection, flood control, reduce pollution and encourage wildlife habitat; and, assist communities in solving local problems through land use planning and to aid in the provision of such services as health and medical, housing, transportation, employment and education.

The program is expected to be in operation for a period of fifteen to twenty years. During that time the project steering committee will set priorities and initiate action with the aid of local, state and federal technical and financial assistance to achieve the above goals. The Economic Research Service of the U.S. Department of Agriculture has estimated that one hundred and sixty-one million dollars of gross income and nine hundred and seventy man-years of employment could result if the project plans are achieved.[1]

The Northwest Michigan RC&D Project is a product of the Department of Agriculture's effort to stimulate overall rural development. The success of that effort is now the

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[1] Ibid.

concern of two agencies within the Department: The Soil Conservation Service which manages all RC&D projects and; The Economic Research Service which is evaluating the RC&D effort in Northwest Michigan.

Purpose of This Study

The larger project, of which this study is a part, was established in 1970 by the Economic Research Service of the U.S. Department of Agriculture for the evaluation of the Soil Conservation Service's Resource Conservation and Development Program. The overall objective of the parent project is to secure information that would be helpful to the Soil Conservation Service and other project sponsors in future development efforts of the RC&D type. Within that framework, several sub-objectives have been proposed and are being carried out. They are: to examine the major classes of project measure proposals for their complementarity with project goals in the NW Michigan RC&D program; to identify proposal and project priorities; to determine the underlying socio-economic characteristics affecting decision results and; to suggest a policy strategy for improving the efficiency of the program.

The primary focus of the entire study and the specific focus of this study has been directed toward an analysis of crucial social and economic influences on local RC&D decision making as applied to the NW Michigan RC&D project area consisting of thirteen contiguous counties in the northwest

portion of Michigan's lower peninsula. The decision makers are specifically the RC&D county steering committee members. These persons generally selected and appointed to their steering committee posts by S.C.S. representatives, i.e., district conservationists within the area, will be the subjects of intensive study throughout this and the ERS project.

This study, in keeping with the objectives of the overall ERS parent project, will through certain objectives tests correlate certain social and economic variables to attitudes toward program effectiveness. Through this process it will be possible to determine the combination of variables that contribute most to positive attitudes.

CHAPTER II

LITERATURE REVIEW

Preliminary data from the results of the Economic Research Service's initial study has shown that fully 82 percent of the respondents feel that the Resource Conservation and Development Program has thus far been effective in achieving stated goals. The underlying characteristics of the respondents, their role relations to the program and the characteristics of the program itself may be related to such attitudes.

A review of the pertinent literature reveals that such relationships may indeed be the case and that knowledge of those relationships is of increasing importance to development efforts. The literature also reveals both through the lack of research dealing with this subject matter and through specific references that a study of this nature will fill a significant gap in development program analysis. Further, it will provide knowledge of those variables that significantly affect program outcomes either through their indirect influence upon attitudes or directly upon the decision making process.

Green and Mayo, for example, point out that community studies generally concern themselves more with structure

than with social action. Although structure studies are important, little can be accomplished in predicting the attitudes and actions of organized groups within the communities.[1]

Many methodological studies have been undertaken that have indicated various techniques for analyzing decision making processes within the community organization. In a 1957 study, Freeman and Mayo, using very basic analytic techniques and measures of decision making, gathered data through personal interviews. The results were indicative of ways in which to identify leadership action within the community situation but, unfortunately the authors did not concern themselves with the concept of attitude.[2]

Using the Green and Mayo framework of analysis, Folkman tried to analyze the decision making process within a farmer's cooperative organization. He suggested certain socio-economic characteristics as well as differing roles and role conflicts as the major characteristics that influence decisions.[3]

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[1]James W. Green and Selz C. Mayo, "A Framework for Research in the Actions of Community Groups," Social Forces, Vol. 31 (1953), 320-327.

[2]Charles Freeman and Selz Mayo, "Decision Making in Rural Community Action," Social Forces, Vol. 35 (1957), 319-322.

[3]William S. Folkman, "Board Members as Decision Makers in Farmer's Co-Operatives," Rural Sociology, Vol. 23 (1958), 239-252.

Other studies have been concerned with the process of leadership involvement in development programs. Sower and Freeman have proposed that the researcher recognize the existence of a traditional set of beliefs and relationships among local participants which can and should be utilized when activating prople in a program defined for the common good.[1] Here, for the first time, one can see the recognition of convergent variables within the community and the decision making body that in combination can lead to success or failure of a program.

How does a researcher approach the study of such variables within a community development program situation? As we are concerned with the action organization itself - the decision making body, the focus should be at the interactional level - the program. This, according to Kaufman and Cole is the "interactional field." In contrast to the neat systematization of local society in the social system approach, the interactional field is a highly dynamic open system which focuses upon interaction and process.[2] Within that framework a host of studies have been carried out. Many of these have focused upon water resources but the

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[1]Christopher Sower and Walter Freeman, "Community Involvement in Community Development Programs," Rural Sociology, Vol. 23 (1958), 26-33.

[2]H. F. Kaufman and L. W. Cole, "Sociological and Social Psychological Research for Community Development," International Review of Community Development, No. 4 (1959), 293.

principles and techniques are equally applicable to related non-water development. Few were concerned with the analysis of attitudes toward program effectiveness per se. The one notable exception was, however, John D. Photiadis' 1966 study of attitudes toward water resources development in South Dakota.[1]

Photiadis was concerned with attitudes of local residents toward various programs as well as the characteristics of the respondents, their knowledge of the programs and other variables. He tried to identify factors relevant to attitude formation. Age, education, residence and ownership were among those variables he found to be of most significance in attitude formation.

Earlier, Wilkinson had reported his research effort dealing with the influence of community structure upon the course and outcome of watershed development programs in the South.[2] Pointing out the scarcity of such research efforts, he indicated that the greater the linkages and the stronger the lines of communication within the interactional field, the greater the likelihood of project accomplishment.

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[1]John D. Photiadis, Attitudes Toward the Water Resources Development Program in Central South Dakota, Department of Sociology Extension Service (Brookings: South Dakota State College, 1966).

[2]Kenneth P. Wilkinson, Local Action and Acceptance of Watershed Development, Water Resources Research Institute (State College, Miss.: Mississippi State University, 1966), 9.

In a later study Wilkinson and Cole delved deeper into the concept of attitude and social variables.[1] Their objective was to assess the influence of community structure on the effectiveness of local watershed development. They clearly point out that attitudes are a field theory concept having to do with the qualitative relationship between an individual's inner feelings and some object in the environment. Differences in socio-economic characteristics influence attitudes to a significant degree. They further suggested that the extent of the individuals' knowledge of and participation in the program will also influence attitudes.

Other literature diverges from the focus of this study. In Price's study of organizational effectiveness the conclusions center not upon the explanation of attitudes but rather the measure of such attitudes of effectiveness.[2]

The importance of attitudes in influencing program outcomes must be regarded as significant. Attitudes, according to Robert Lauer, influence various psychological

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[1]Kenneth P. Wilkinson and L. W. Cole, Sociological Factors in Watershed Development, Water Resources Research Institute (State College: Mississippi State University, 1967).

[2]James L. Price, "The Study of Organizational Effectiveness," The Sociological Quarterly, Vol. 13 (1972), 3-15.

processes and govern perceptions so that the perception of any phenomenon is congruent with attitudes.[1]

The paucity of literature in the field of attitude explanation explicitly related to decision making and program effectiveness is quite apparent. Again, Wilkinson and Singh, leaders in the field of social science applications to development program analysis, suggest that social-psychological problems in development efforts have been virtually ignored. "In the long run," they say, "these may prove to be the most significant problems of all. Programs are operated, blocked, salvaged or abandoned by people. While the environmental situation and social structural conditions obviously contribute to human behavior, in the final analysis man behaves or fails to behave in a particular manner on the basis of his own more-or-less unique perception of reality..."[2]

More recently, Wilkinson said that theoretical concepts of community development also have been merely ignored and it

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[1]Robert N. Lauer, "The Problems and Values of Attitude Research," The Sociological Quarterly, Vol. 12 (1971), 247-252.

[2]R. N. Singh and Kenneth P. Wilkinson, Social Science Studies of Water Resources Problems: Review of Literature and Annotated Bibliography, Water Resources Research Institute (State College: Mississippi State University, 1968), 23.

would seem to be important to consider the dominant forces affecting community structure in order to develop more valid criteria for evaluating programs. He said that consideration of community structure is being ignored by external agencies and submits that very little is known of the consequences of such ignorance.[1]

The literature suggests both directly and indirectly by the lack of relevant literature that there is a need for an evaluation of social factors implied in development. Beyond that there is a dearth of knowledge and research concerning the role of decision makers' attitudes and how these complex multivariate attitudes relate to social, economic and perceptual variables. In general, adequate models to describe the intricacies of decision making and thereby, critical points in the process, are lacking.[2] Although several studies have dealt with attitudes and their relation to program outcome, they provide little evidence to show just how much of a role attitudes play in

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[1]Kenneth P. Wilkinson, "A Field-Theory Perspective for Community Development Research," Rural Sociology, Vol. 37 (1972), 43-52.

[2]White, 108.

determining final outcomes.[1] Further, there is as yet no adequate and explicit model upon which development efforts or organization can be structured to enhance positive attitudes and program outcomes.

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[1]Several studies have noted the relationship between favorable or positive attitudes and actual behavior within an organization. Some examples are: James H. Copp, "Perceptual Influences on Loyalty in a Farmer Cooperative," Rural Sociology, Vol. 29 (1964), 169; Irwin Deutscher, "Words and Deeds: Social Science and Social Policy," Social Problems, Vol. 13 (1966), 235; John Harp, "A General Theory of Social Participation," Rural Sociology, Vol. 24 (1959), 380; Rensis Lickert, New Patterns of Management, (New York: McGraw-Hill, Inc. 1961).

CHAPTER III

RESEARCH PROCEDURES

The literature review of the preceeding chapter points out a need for research concerning the relationship between social factors and attitudes. It also suggests that previous research dealing with attitude formation has isolated such factors as age, education, residence and tenure as significant antecedent contributors to attitudes. Yet, there is no real indication of the degree to which such sociological indicators are related to attitudes. It is therefore important to investigate such relationships in a manner that will yield results to help explain attitude formation.

Objectives

The objective of this study involves the quantification of various socio-economic characteristics of the Northwest Michigan RC&D steering committee members, their attitudes and opinions in order to:

1. Determine the overall relationship between such characteristics and attitudes.

2. Attempt to find causal relationships between specific antecedent socio-economic characteristics and attitudes toward program effectiveness. It is, however, recognized that causal relationships are merely assumed and not proven in this study.
3. Apply techniques of analysis not previously used in the analysis of development programs to:
   A. provide more precise measures of relationship between variables;
   B. suggest further application of similar techniques to development program analysis.
4. Develop a model upon which to analyze attitudes in other related development programs to:
   A. provide sponsoring agencies with an additional resource for assessing program achievement;
   B. provide new insight into attitude formation within the local decision making framework.

Data Collection

To accomplish the above objectives the data to be quantified and analyzed was provided by the Economic Research Service (North-Central Resource Group). Although the author was not directly involved in the data collection process a description of the procedure will nevertheless be provided.

The data was gathered through individual personal interviews with the entire population of seventy-two county RC&D leaders (county steering committeemen). As indicated earlier, these steering committee members representing the

thirteen counties in the NW Michigan RC&D Project were generally selected and appointed to the county steering committees by Soil Conservation Service representatives within the region. Each county has its individual steering committee which in turn is responsible to the Project Steering Committee. Some county steering committee members can simultaneously serve at the Project level. Because of the relatively small number of persons in the steering committee population a census rather than a sample was determined to be feasible within the time and funding limits established by the Economic Research Service evaluation project.

The individual personal interviews were administered in the Autumn of 1971. Two interviewers intimately involved in the questionnaire design were utilized in the field to contact each of the steering committee members on an individual basis. It was reported that each interview required an average of one and one-quarter hours to administer.

The questionnaire itself (see Appendix A) was designed, pretested for weaknesses and addition of new questions as well as revised under the direction of Mr. David G. Carvey, Project Leader, during a six month period prior to its actual administration in 1971. The following persons outside of the Economic Research Service - Natural Resource Economics Division participated in the review and criticism of the questionnaire: Dr. William J. Kimball, Department of Resource Development, Michigan State University; Dr. J.

Allen Beegle, Department of Sociology, Michigan State University; Dr. A. A. Schmid, Department of Agricultural Economics and Department of Resource Development, Michigan State University; Dr. James Copp, Economic Development Division, Economic Research Service.

The pretest of the instrument indicated several changes to be incorporated into the final version. For example, the personal data questions were relocated from the beginning of the interview schedule to the end of the schedule. The decision was made based on the assumption that such questions could be construed by the respondents as threatening to their privacy and as a result could hinder the relationship between interviewer and interviewee thereafter. The exclusion of questions related to the respondents' length of present employment, the educational achievement of his dependents, his dependents' mobility and his estimate of the population of the nearest village, town or city, were deemed to be superfluous and of little value to the goals of the interview survey. The addition of the open ended question allowing the respondent to comment on any aspect of RC&D at the end of the interview schedule was found to be necessary as a relief valve to ideas not covered in the interview per se.

In addition, the interview survey did not coincide with any similar data collection effort by the ERS or other federal agency during that time. The survey resulted in thirty-nine quantifiable questions from which there are a

possible three-hundred and sixty-eight responses or variables available for further analysis.

Hypotheses

The principle objective of this study is to identify and attempt to explain the relationship between certain socio-economic characteristics of the decision makers, their roles, perceptions and beliefs and positive attitudes toward program effectiveness. In an attempt to hypothesize the direction of the relationships between each of the possible three-hundred and sixty-eight variables from the attitude survey, it became apparent that such a task would itself require a volume of pages to record. For example, it could be hypothesized that each age group, income group, occupation, membership affiliation and so on, is positively or negatively correlated to affirmative attitudes toward program effectiveness. Instead of such an exhaustive listing of hypotheses the literature review suggested that certain characteristics of the respondents would be positively correlated to attitudes of effectiveness. As a result, the following general working hypotheses were constructed to include broad groupings of characteristics without identifying individual categories within the groups. The hypotheses are:

1. There is a positive relationship between the socio-economic characteristics of the respondents, their role relations, reference groups, their environmental perceptions and positive attitudes toward program effectiveness.

2. The respondents' opinions of RC&D contribution to the solution of both human and natural resource related problems are highly correlated to positive opinions of program effectiveness.

The above general hypotheses are aimed at identifying those variables that offer explanations of the steering committee members' positive attitude toward the RC&D program effectiveness and hence, its possible outcome. Although this study does not deal with program outcomes or measure adoption per se, the basic assumption in the measurement of attitudes toward program effectiveness is that such attitudes are a representation or surrogate measures for program outcomes as of the time period in which the questionnaire was administered. It is further assumed that the attitudinal patterns are, in an aggregate sense, true representations of actual program effectiveness.

Methods of Statistical Analysis

When analyzing attitudes toward program effectiveness two tasks must initially be performed. First, clusters of related events to be included within concept of "effectiveness" must be identified. Secondly, the procedure for analyzing the relationship between the multivariate responses making up the concept of effectiveness and the multivariate responses accounting for the variance in "effectiveness" must be selected in order to explain those relationships.

Ad discussed in Chapter I, concepts of attitude represent many related and individual forms of behavior. As a result, the researcher can no longer be satisfied with a simple and singular predictor and criterion relationship. Rather, it is more valuable, in terms of explanation, to determine the relationship between several variables eventually reducing these to the principle factors of explanation. In pursuing that objective, the researcher can identify unifying principles and at the same time discard irrelevant phenomena.[1]

The first task, that of identifying related events to be included within the concept of effectiveness, was performed in two related operations. All of the responses from the quantifiable questions on the attitude survey were cross-tabulated with one another. (See Appendix C) The result of this cross-tabulation specifically showed the number and nature of all other responses when one particular response was given. For example, of those respondents that gave an "effective" response to the question relating to their opinion of RC&D effectiveness, 16 respondents indicated their income to be between five and ten thousand dollars. In this way each of the 368 responses can be cross-checked

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[1]Paul B. Koons, Jr., "Canonical Analysis," in Computer Applications in the Behavioral Sciences, ed. by Harold Borko (Englewood Cliffs: Prentice-Hall, Inc., 1962), 267-279.

with each of the others in a like manner. This step enables the selection of meaningful variables to be further analyzed in light of the hypotheses.

As a second check on the relevance of variables chosen, the correlation coefficients of each of the 368 variables was calculated to determine each variable's measure of relationship to all others. Again, the technique provides a means of isolating those variables that would be further analyzed with more powerful explanatory techniques. (See Appendix D)

Using the variables selected from the above procedures another simple cross-tabulation was performed. A matrix of cross-tabulations was constructed for ease of analysis. From these tables the final categories of variables were selected in terms of the criterion and predictors to be used in the final analysis.

The second major task of attitude analysis is the selection of the analytic technique by which to test the hypotheses. Considering the elements of the problem, the loosely defined and not easily quantifiable variables involved in attitudes of program effectiveness coupled with several measurable or observable quantitites such as socio-economic data, role relations and others, it was clearly determined that no single multiple regression equation would provide an adequate solution to explain such attitudes. As a result, two analytical methods were chosen: Canonical Analysis and Factor Analysis for factor isolation.

Canonical Analysis was chosen as the principle technique for the task.

To more clearly define canonical analysis and its explanatory power the closely related technique of Multiple Regression Analysis will be reviewed while pointing out the similarities and dissimilarities.

The problem at hand involves a large amount of data. What is required is an equation for one of the quantities in terms of its relationship to all the others. The technique for arriving at such an equation is called "regression". Regression identifies the strength and direction of relationships, summarizes the data and predicts new or future situations. In other words, regression finds the "best" equation relating Y to X_1 and $X_2 \ldots X_n$. Pictorially, a regression equation locates a plane passing closest to a cluster of points in space (a point being a Y corresponding to X_1, $X_2 \ldots X_n$). A formula based on the data is easily computed and prediction of new values for a given X value can be made.[1] Similarly, canonical correlation can be considered as a measure of the extent to which individuals in sets occupy the same relative

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[1] International Business Machines Corporation, Concepts and Applications of Regression Analysis (White Plains, N.Y.: International Business Machines Corporation, 1966), 1-3.

relative position in the predictor (independent variables) space as they do in the criterion (dependent variables) space.[1]

Canonical analysis is similar to regression in the sense of finding the best equation relating the variables but it goes much further in another sense. Whereas in regression analysis there can only be one Y variable (dependent) and multiple X (independent) variables, in canonical analysis the data are organized and analyzed in sets of variables. That is, both the dependent and independent variables are multivariate. Each set can theoretically contain as many variables as the researcher finds necessary. In reality there are limits placed on the number of variables in each of the sets by the computer capacity.

The use canonical analysis can involve any or all of the following:

1. Determining which variable in each of the two sets contributes most to the between set association.
2. Finding linear combinations of the predictor and criterion sets that maximize correlation when linear combinations are correlated in a two variable sense.

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[1]William W. Cooley and Paul R. Lohnes, Multivariate Procedures for the Behavioral Sciences (New York: John Wiley & Sons, Inc., 1962), 36.

3. Predicting linear combination scores of objects in one set of variables from those in the other set.[1]

The similarities between canonical analysis and multiple regression analysis are apparent. For example, in multiple regression the researcher is attempting to find a linear combination predictor variable that is most highly correlated with the criterion or dependent variable. When using canonical correlation the researcher finds linear combinations made up of sets of variables on both sides of the equation.

Rhea Das has pointed out:

> "A variety of research problems call for the investigation of the relations between two sets of variables. Given a set of predictor variables and a set of criterion variables with measurements on the same individuals, the empirical question is one of obtaining the most effective prediction... To explore a new domain, several standard reference tests of one set of factors and a number of standard reference tests of another set of factors can be employed. These illustrative situations concern the relations between two sets of variables and as such should be amenable to the statistical method of canonical analysis."[2]

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[1] Paul E. Green and Donal Tull, Research For Marketing Decisions, (Englewood Cliffs, N.J.: Prentice-Hall, Inc. 1970), 377-378.

[2] Rhea S. Das, "An Application of Factor and Canonical Analysis to Multivariate Data," The British Journal of Mathematical and Statistical Psychology, Vol. 18 (1965), 57.

In further detail, the technique of canonical correlation begins with the determination of the inter-correlations of the variables within each of the two sets and a cross-correlation between those two sets. The result of the first intercorrelation, utilizing one set as the "predictor" and the other set as the "criterion", yields a matrix of correlation between the predictor and the composite criterion as well as a matrix of regression weights for the set of predictors. It also yields the reverse of the above. In other words, it yields the matrix of correlation between the criterion set and the composite predictor and matrix of regression weights for the criterion.[1] Most importantly, we now have the numerical values known as canonical coefficients. The resulting numerical values for each of the variables in both sets show their relative predictive power. The weights derived for each of the variables in this maximum correlation of both sets show their relative importance in both the concept of effectiveness and the formulation of the attitudes toward program effectiveness. These weights are interpreted in terms of the magnitude of their values in combination with the direction of their sign.

Canonical analysis yields the following data from which conclusions can be drawn with regard to the general hypotheses:

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[1]Koons, 269.

1. Means and standard deviations of all variables.
2. Correlation matrix.
3. The Chi-squares and degrees of freedom.
4. Factor pattern for both sets.
5. Canonical correlations with weights associated with each variable in each set.

The computation of canonical correlations is accomplished by using the procedure developed by Paul R. Lohnes at the University of Buffalo and modified for use on Michigan State University's CDC 3600 computer by A. V. Williams of the Computer Institute for Social Science Research. CISSR'S CANON routine requires that no more than 80 variables be computed during any single run. As a result, I have arranged all of the pertinent variables into five "predictor" sets and one "criterion" set (listed below). Each computer run will perform canonical analysis upon each of the five predictor sets in combination with the single criterion set. Computationally, it is irrelevant whether the variables on the left or on the right are considered as criterion or predictor. However, computer time is minimized if the data are arranged so that the variables on the right are less in number than those on the left.

A sixth predictor set was constructed after the results of the first five canonical correlations were analyzed to determine those variables most influential in explaining attitudes toward program effectiveness. From that, a composite predictor was maximally correlated

again with the original criterion set to obtain results that were originally unavailable because of the limited computer capacity.

Following is a list of variables (Figure 1) grouped into predictor and criterion sets. The sets were established in such a way as to minimize computational time and maximize ease of analysis. All sets are categorized according to types of variables contained within each set and are so indicated by their respective titles. The variables were grouped together within sets based upon ease of identification and conceptual similarity.

Factor Analysis With Canonical Analysis

In an attempt to further understand the relationship between favorable attitudes toward the RC&D program and the socio-economic and perceptual structure of the decision makers another canonical correlation was computed this time using as the independent or predictor variables the factors isolated from the total of 368 variables. The means by which these factors were isolated was "factor analysis."

The Economic Research Service, Natural Resource Economics Division data file provided the results of a previously computed factor analysis of all variables derived from the attitude survey. The ERS data yielded a total of fifty factors which could be used as the predictor set in canonical analysis. This new predictor set was correlated with the previously established criterion set

Predictor Sets

Set Number		Number of Variables
1.	Socio-Economic	
	Age	4
	Education	6
	Proximity to Econ. Place	3
	Occupation	20
	Income	6
	Total	39
2.	Problem Perceptions	
	Economic Perceptions	3
	Nat. Environment Perceptions	4
	Social Envir. Perceptions	5
	Total	25
3.	Role Relations	
	Residence & Tenure	12
	Related Roles & Tenure	3
	Current Roles	4
	Initial Contact	7
	Key Leaders	11
	Total	37
4.	Membership	
	Influential Human Res. Oriented Organization	15
	Influential Natural Res. Oriented Organization	15
	Membership in Human Res. Oriented Organization	10
	Membership in Nat. Res. Oriented Organization	0
	Total	49
5.	Goal Relations	
	Availability of Goals	1
	Efforts to Interest Local People	1
	Proposal Forwarding	1
	Community Awareness	3
	Leadership Involvement	5
	Propensity to Change	1
	Total	12

Criterion Set

Attitudes Toward Program Effectiveness	Number of Variables
Opinions of Effectiveness	2
RC&D Contribution to Problem Solution (HRO)	7
RC&D Contribution to Problem Solution (NRO)	7
RC&D Contribution to Economic Development	1
Total	17

Figure 1. - Predictor and Criterion Sets Used in Canonical Analysis

used in prior canonical analysis.

This additional model or technique of analysis was attempted for several reasons. First, the results of factor analysis were used to compare those variables isolated by that technique to the results of the initial canonical analysis. This would provide, it was thought, additional insight into the explanation and prediction of positive attitudes toward program effectiveness. It was further reasoned that such a comparison would provide a check on the reliability of canonical analysis as well as the cross-tabulations and correlation coefficient method of variable selection used to establish criterion and predictor sets in the first five canonical correlations.

The technique of factor analysis as employed by the ERS was an attempt to find order and regularity in phenomena. "As phenomena co-occur in space or in time, they are patterned; as these co-occurring phenomena are independent of each other, there are a number of distinct patterns.[1] We assume patterns for such things as political systems, development schemes as well as decision makers' attitudes. Factor analysis handles all measurements both quantitative and qualitative and resolves them into distinct patterns of

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[1]R. J. Rummel, "Understanding Factor Analysis," Conflict Resolution, Vol. 11 (1967), 445.

occurrence. "It makes explicit and more precise the building of fact-linkages going on continuously in the human mind."[1] Factor analysis, like canonical analysis has the capability of considering a large number of variables or characteristics and reduces these into a smaller number of factors for further conceptual analysis.

This study, then, utilized factor analysis in the selection of independent or predictor variables to be used in canonical analysis. The resulting weights and equation as well as the comparison to previous methods will be reported in the following chapter.

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[1] Ibid.

CHAPTER IV

RESULTS

To accomplish the objectives of the study the data derived from the personal interview survey will be discussed and analyzed at two levels: first, the primary data are reviewed to illuminate the basic socio-economic, perceptual and attitudinal constructs of the respondents; second, the results of the statistical analytic techniques are discussed for their explanatory content and modelling implications.

The Preliminary Results

The data derived directly from the questionnaire survey reveal interesting generalizations that can be drawn concerning the overall socio-economic attributes of the steering committee or respondent population. From the data portrayed in Table 1, a hypothetical average or composite steering committee member can be characterized. Generally, this respondent is male, about 51 years of age and likely to be a farmer or self-employed in other business activities. He has completed high school and has had some college training. His present income is about eleven thousand dollars and he has lived in his present county of residence for more than twenty years.

Socio-Economic Characteristics

More specifically, 62 percent of the steering committee members were fifty years of age or older. Only 14 percent were less than forty years of age. Nearly seventy percent of the respondents had lived in Michigan for forty years or more, while about 35 percent had lived in their present county of residence for forty years or longer. Slightly less than 30 percent of the committeemen had completed high school only. But over 37 percent had some college training and 18 percent were college graduates.

Income was varied but the estimated average income was over $11,000 in 1970. Yet, nearly 10 percent of the respondents earned less than five thousand dollars; more than half earned over ten thousand dollars.

To further determine factors associated with attitudes, perceptions and priorities, each respondent was asked to specify the distance from his home to the village, town or city (economic place) where his family does most of its shopping. Thirty-eight percent live within the limits of an economic place while another 30 percent live within five miles of an economic place. The data also reveal that 22 percent live ten miles or more from their economic center. (See Table 1)

Each respondent was asked to indicate his membership in groups or organizations according to the categories listed in Table 2. Additional data was derived by asking

Table 1

Socio-Economic Characteristics of the Respondents

Categories	Percent of Total	Categories	Percent of Total
Age		**Education**	
20-29	2.8	Completed H.S.	29.2
30-39	11.1	H.S. Tech. Tr.	2.7
40-49	23.6	Some College	37.5
50-59	33.7	College Graduate	18.0
60 plus	27.8	Special training*	29.2
Residence & Tenure		**Income**	
Years in State		less than $5,000	9.7
under 20	1.3	$5,000 to $10,000	37.5
20-29	11.1	$10,001 to $15,000	26.4
30-39	18.0	$15,001 to $20,000	12.5
40-49	22.2	over $20,000	8.3
50-59	29.2	non-response	4.2
over 60	18.0	**Proximity to Economic Place**	
Years in County		0 miles	37.5
under 20	23.6	1-5 miles	29.2
20-29	25.0	6-10 miles	11.1
30-39	11.1	more than 10 miles	22.2
40-49	18.0		
50-59	16.7		
over 60	5.6		

*In some cases a response to "special training" was received in conjunction with a response in another category.

each respondent to indicate whether or not he is an active member or officer in each group or organization.

Of the fourteen types of categories of organizations listed, seven were human resource oriented and the remaining seven were natural resource oriented.[1] Within the natural resource grouping, membership totaled 129. Of those, 114 were active participants. The highest number of members recorded for all groups was in the "Agricultural" category in which 33, slightly less than half of the respondents, indicated participation. The human resource oriented categories had 95 respondents indicating their membership. Ninety-one of those said they were active participants. (See Table 2)

Respondents were asked: "How did you first hear of the RC&D program?" Fifty percent of the steering committee members specified an agriculturally related group or organization as their initial contact. The principle agricultural sources were Extension Agents and District Conservationists. In all, very nearly 75 percent of the decision makers indicated initial contact with RC&D through natural resource oriented groups (see Table 3). In fact, only about 22 percent had first heard of the program through human resource related groups. Within that category,

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[1]All problem areas, memberships, priorities and other concerns were divided into either categories of human resources, e.g., housing, medical, education, etc. or natural resources oriented, e.g., water, forestry, recreation, etc.

Table 2

Respondent Membership

Natural Resource Oriented	Membership
Environment	17
Land	28
Water	4
Agriculture	33
Forestry	6
Recreation	23
Planning and Development	18
Total	129

Human Resource Oriented	Membership
Education	24
Health and Medical Service	18
Industry	4
Employment	6
Transportation	8
Housing	12
Community Facilities & Service	29
Total	101

Table 3

Respondents' Initial RC&D Contact

Categories	Number of Respondents	Percent of Total
Natural Resource Oriented		
Environment	1	1.4
Land	13	18.0
Water	..	...
Agriculture	36	50.0
Forestry	..	...
Recreation	4	5.5
Planning and Development	..	...
Human Resource Oriented		
Education	..	...
Health and Medical Serv.	1	1.4
Industry	..	...
Employment	..	...
Transportation	1	1.4
Housing	..	...
Community Facil. & Serv.	14	19.4

19 percent of all respondents had made their initial contact through "Community Facilities and Services" groups. "Land" related groups ranked third as a source of contact and primarily included SCD personnel as the contact source.

In order to further identify the social structure and leadership framework within the RC&D area, each committeeman was asked to identify up to three groups or organizations which he considered to be influential within the community and the RC&D program. They were also asked to identify, by occupation, the individuals each considered as key leaders within the community.

The respondents listed 192 groups or organizations they felt were influential in the RC&D region (Table 4). There is a relatively even distribution between human and natural resource categories. A closer look, however, reveals that the category, "Community Facilities and Services", accounted for 77 responses. This represents 40 percent of the 192 total. Included within that category are all social, civic, and religious organizations (other than church membership per se) as well as some governmental organizations and specific interest groups.

Agriculture accounted for 22 percent of the responses principally because of the committee memberships association with the Extension Service and the Soil Conservation Service. Other organizations included within this category were, Farm Bureau and local Grange.

Planning and Development organizations were also mentioned frequently (31). Most mentions represented county planning commissions and the Economic Development District (EDD).

Key community leaders were identified by occupation. The five major occupation groups identified include: Managers, Farmers, Extension Agents, Foresters-Conservationists and, Public Officials. Respondents were further asked to indicate whether or not these key leaders were active or involved in the RC&D effort.

Table 4

Influential Organizations by Category

Categories	Mentions
Human Resource Oriented	
Education	3
Health and Medical Services	1
Industry	4
Employment	0
Transportation	5
Housing	3
Community Facilities and Services	77
Total	93
Natural Resource Oriented	
Environment	1
Land	14
Water	2
Agriculture	42
Forestry	3
Recreation	6
Planning and Development	31
Total	99

The results, again, reflect the natural resource orientation of the RC&D committeemen. The three occupational groups with the highest incidence of RC&D involvement are: Farmers, Extension Agents and Forester-Conservationists (see Table 5).

Within the same context, the respondents were asked to identify the roles that the various leaders they had singled out by occupation now filled in the RC&D program. Of the 101 key leaders involved in RC&D, half were steering committee members (Table 6). Obviously, then, the RC&D

Table 5

Key Leader Identification and RC&D Involvement By Occupation

Occupation	Mentions	RC&D Involvement Yes	No	Undecided
Manager	50	15	33	2
Farmer	34	23	10	1
Public Official	17	8	9	0
Teacher	9	2	5	2
Extension Agent	22	19	3	0
Forester-Conservationist	18	17	1	0
Construction	7	2	4	1
Physician	5	1	4	0
Engineer	6	2	3	1
Insurance Agent	3	0	3	0
Retired	9	6	3	0
Other	19	6	12	1
Total	199	101	90	8

committeemen tended to identify members of their own steering committees as key leaders. About 18 percent were identified as advisors, while proposal sponsorship accounted for 5 percent. Indirect involvement, implying that the leaders were working toward results similar to those desired by the RC&D project itself but not through personal RC&D involvement, accounted for 28 percent of the key community leaders.

Table 6

Key Leader Participation By Roles

RC&D Role	Mentions	Percent of Total*
County Steering Committee	50	25.1
Advisors	18	9.0
Project Sponsors	5	2.5
Indirect	28	14.1

*Percentages based upon 199 key leaders identified

Attitudes and Perceptions

This portion of the data from the results of the questionnaire survey concerns the respondents' attitudes toward the RC&D program and its contribution to the solution of community problems. In addition, the findings are concerned with the steering committee members' perceptions and beliefs about various aspects of the local environment.

All committeemen were asked: "Which response best expresses your opinion of RC&D effectiveness in achieving goals of the RC&D project for your county?" The respondents' choices were: effective, slightly effective, not effective, undecided.

More than half (54.2%) chose "effective" to describe their feeling toward the RC&D program. The combination of both positive responses (i.e., "effective" and "slightly effective") accounted for the attitudes of 82 percent of

the steering committee members. Only about 15 percent chose to characterize the program as "ineffective" while two respondents were undecided (see Table 7).

Table 7

Respondents' Opinions of RC&D Effectiveness

	Effective	Slightly Effective	Not Effective	Undecided
Number of Respondents	39	20	11	2
Percent of Total	54.2	27.8	15.3	2.8

Table 8, is divided into the two broad categories of human resource orientation and natural resource orientation. The data portrayed in the table is the result of the question asked of all the respondents regarding their opinion of RC&D's potential contribution to the solution of universal community concerns. It is interesting to note that the steering committee membership generally felt that RC&D is more likely to achieve valuable progress in the natural resource oriented problem areas than in the human resource oriented problem areas. The highest positive response in any of the problem areas was that dealing with "Land." Here, 89 percent of the 72 respondents felt that RC&D can make valuable contributions to problem solution. Not far behind in the number of positive responses is the problem category "Water" (86%). Considering all categories dealing

with natural resource oriented problems, the lowerst number of positive responses is greater than the highest number of positive responses in the human resource oriented categories.

The greatest number of positive responses in the human oriented problem areas lies in the "Community Facilities and Services" category. Seventy-six percent of the committee members felt RC&D could make a valuable contribution to problem solution within that realm.

Negative opinions were few in the natural resource areas, while as many as 32 percent of the respondents registered a negative opinion for the "Health and Medical Services" category. The problem areas of "Housing" and "Transportation" drew 31 percent and 29 percent negative response respectively. (See Table 8)

In answering a question concerning whether the RC&D project has helped to improve economic opportunities for the people of their counties, the steering committee members holding the opinion that it did were in the majority (58.3%). Some respondents (30.6%) felt that the project is not making any noticeable improvement and therefore see no RC&D results in their counties (see Table 9).

Comparing the results of this question to the responses regarding opinions of RC&D effectiveness a definite connection can be surmised. In fact, this same distributional pattern of opinions is evident throughout the survey results.

Table 8

Respondents' Attitudes Toward Program
Contribution to Human and Natural Resource Problems

Categories	Percent of Total*	Categories	Percent of Total*
Education		Environment	
Yes	42	Yes	80
No	26	No	7
Undecided	32	Undecided	13
Health & Medical		Land	
Yes	33	Yes	89
No	32	No	3
Undecided	35	Undecided	8
Industry		Water	
Yes	56	Yes	86
No	21	No	3
Undecided	24	Undecided	11
Employment		Agriculture	
Yes	67	Yes	67
No	15	No	12
Undecided	18	Undecided	21
Transportation		Forestry	
Yes	47	Yes	81
No	29	No	7
Undecided	24	Undecided	12
Housing		Recreation	
Yes	47	Yes	83
No	31	No	3
Undecided	22	Undecided	14
Community Facilities and Services		Planning and Development	
Yes	76	Yes	85
No	7	No	4
Undecided	17	Undecided	11

*Percentages are rounded to nearest whole number.

Table 9

Respondents' Attitudes Toward Program Contribution To Economic Development

	Yes	No	Undecided
Number of Respondents	42	22	8
Percent of Total	58.3	30.6	11.1

Questions were asked concerning the respondents' opinion of the economic situation within his county, quality of the natural and social environment, community awareness of the RC&D project and, the individual's propensity to change the program.

Responses to the question concerning economic conditions ranged from "Growing Rapidly" to "Declining Rapidly". Generally, the RC&D leaders perceived economic conditions as "growing". None felt that his county was declining rapidly and only one committeeman felt that his county was declining at all. Comparing this data to the responses from Table 9, it is assumed that the respondents attribute some of the perceived economic growth to the RC&D effort.

Table 10

Respondents' Perception of Economic Conditions

Choices	Number of Responses	Percent of Total
Growing Rapidly	21	29.7
Growing Slowly	40	55.6
Stabilized	10	13.8
Declining Slowly	1	1.4
Declining Rapidly	..	...
Undecided	..	...

The steering committee members' perception of the natural environment generally favored the opinion that the natural environment is improving slowly. Extreme perceptions of rapid deterioration or rapid improvement of the environment accounted for only 12 percent of the responses (Table 11).

The perception of the social environment was primarily that of "improving slowly" and generally these responses were more positive than the responses to perceptions of the natural environment. (See Table 11)

When asked to indicate the degree to which the RC&D program is known and understood by the people of their county, over three-fourths of the committeemen expressed the belief that the program was not very well known. (Table 12)

Table 11

Respondents' Perception of Natural and Social Environmental Quality

Choices	Natural Environment		Social Environment	
	Number of Responses	Percent of Total	Number of Responses	Percent of Total
Improving Rapidly	3	4.1	11	15.3
Improving Slowly	25	34.7	44	61.1
Stabilized	19	26.4	12	16.7
Deteriorating Slowly	19	26.4	3	4.2
Deteriorating Rapidly	6	8.3	1	1.4
Undecided	..	...	1	1.4

Table 12

Respondents' Opinions of Community Awareness of the RC&D Program

Choices	Number of Responses	Percent of Total
Very Well	2	2.8
Somewhat	14	19.4
Not Very Well	55	76.4
Undecided	1	1.4

In view of the above responses, the results of the question concerning the respondents' willingness to change the program if they had the authority are not surprising. Forty-six percent of the decision makers felt they would change the program while 32 percent would not (see Table 13).

Table 13

Respondents' Propensity to Change the RC&D Program

Choices	Number of Responses	Percent of Total
Yes	34	46.5
No	23	32.4
Undecided	15	21.1

Summary of Preliminary Findings

The preliminary results of the questionnaire survey indicate that local RC&D leadership in the NW Michigan RC&D project has a strong natural resource orientation. This favoritism of natural resource concerns is shown by such indicators as organizational membership, occupation and perceptions of RC&D contributions to problem solution. Over one-third of all membership was in Agriculture, Land or Recreation organizations. Over half of the steering committee members were farmers. The social system identified by the respondents also pointed to the natural resource orientation. Influential organizations and key

leaders as identified by the RC&D leadership principally focused upon natural resources as well.

Committee members were generally positive in their opinions concerning RC&D effectiveness although such opinions were tempered by their more frequent choice of "Slightly Effective" as opposed to the more positive response. Further, the majority of respondents felt that program effectiveness is reflected in improved economic conditions. Most felt, however, that the program was not very well known within their communities.

Since the objective of this study is to determine the underlying structure of positive opinions toward program effectiveness the data derived from the questionnaire was coded and organized for further analysis using the techniques described in Chapter III. From the above description of the raw data it can be observed that there are some relationships between the various opinions, perceptions and socio-economic characteristics of the respondents. Yet there is no indication of the degree of relationship or the magnitude of variance or covariance between these factors to account for the formation of attitudes toward program effectiveness. The following description of the results of the statistical analysis will attempt to define those relationship more precisely.

Results of Statistical Analysis

Noting earlier that the concept of attitudes represents many related and individual forms of behavior that are often intrinsically tied together by the same attitude forming processes, it is difficult to single out an isolated response from the entire attitude survey and assume it to be representative of closely related and interwoven attitudes and beliefs. Further, to identify the various relationships between attitudes it is more valuable from an explanatory point of view to scan all available data in order to discern relationships among actual responses rather than assume relationships on an a priori basis. In this study, initially all of the data were viewed as a single matrix in which all variables were correlated to all others. The purpose was to identify unifying principles related to the respondents' characteristics and belief patterns. Concurrently, it was possible to eliminate obviously irrelevant phenomena from further consideration.

The task of identifying related variables was accomplished by employing simple cross-tabulation and simple correlation analysis. The cross-tabulation procedure involved compiling the number of mentions for each possible response choice on the questionnaire in relation to all other responses. In this way, it was possible to find the number of all other responses when one response was given.

With a 368x368 matrix of cross-tabulations it was decided to reduce the complexity of the information and construct a table of cross-tabulations focusing upon the two positive effectiveness responses: "effective" and "slightly effective". As such, all 368 variables were viewed in relation to the number of responses for each when the two positive opinions of program effectiveness were chosen. From this matrix the data was reduced to 177 variables that were apparently associated with positive attitudes (see Appendix C). Cross-tabulations, however, offer no measure of relationship or association between variables.

To further analyze the questionnaire results and identify related variables the correlation coefficients (Pearson Product Moment Correlations) were computed for all 368 variables. Here again, the mass of data was reduced to more manageable size by the construction of a correlation matrix between the positive effectiveness variables and all others (17x368). With the insight gained from the cross-tabulation procedure it was obvious that the highest correlations would be associated with the highest number of responses.

The results of the correlation analysis yielded measures of interdependence between the variables. These measures formed the base from which five sets or categories of variables were isolated for further analysis. A total of 177 variables were chosen by this procedure, in

combination with the cross-tabulation procedure, to be used in canonical analysis (see Appendix D).

Further consideration of the correlation matrix revealed a particularly high degree of interdependence between the variables of "positive effectiveness", "valuable contributions" and "improved economic opportunity" (see Table 14). This combination of seventeen variables seemed to be describing similar attitudes with regard to the RC&D program. The positive effectiveness responses were direct measures of attitudes toward program effectiveness, while the respondents' opinions as to the program's valuable contribution to problem solution catagorized into the fourteen human and natural resource related areas appeared to be intrinsically related to those opinions of effectiveness. The positive response regarding the opinion of improved economic opportunity also tended to be correlated highly with opinions of effectiveness and opinions as to the program's valuable contribution to problem solution.

There existed, then, reason for combining these variables into a single criterion set of variables representing a multivariate measure of positive opinions of program effectiveness. Reviewing the simple correlation matrix again, this time aware of the interdependence of the seventeen criterion variables, the observed relationship between these criterion variables and the remaining 162 variables

appeared to "make sense". The task now was to determine the over-all correlation between the subset of criterion variables (opinions of RC&D effectiveness) and the predictor variables. The predictor variables were arranged into subsets, as described earlier, for ease of identification and computational efficiency in canonical correlation analysis. In addition, the sets contained variables having conceptual similarity. Each of the 162 variables was selected from the total of 368 by the methods of correlation analysis and cross-tabulation coupled with the researcher's intuitive judgement tempered by previous research findings noted in the literature review.

Results of Canonical Analysis

The criterion set of variables consisted of seventeen indicators that were determined to constitute a valid measure of opinions of RC&D effectiveness. Each of the five predictor sets of variables was correlated to the constant criterion set in five separate canonical correlation computer runs. The results of these first five analyses will be discussed as the basis of the sixth and final canonical model. These initial results are interpreted in terms of the numerical values known as canonical coefficients and canonical weights. The numerical values for each of the variables in both sets show the variables' explanatory power relative to all other variables. That is, the weights

Table 14

Correlation Matrix of Criterion Variables

	Effective	Sl. Effective	Environment	Land	Water	Agriculture	Forestry	Recreation	Plan. & Dev.	Education	Health & Med.	Industry	Employment	Transportation	Housing	Com. Fac. & Ser.	Impr. Econ. Opp.
Effect.	1.000																
Sl. Effect.	-.674	1.000															
Environ.	.182	-.009	1.000														
Land	.207	.022	.720	1.000													
Water	.195	.070	.614	.880	1.000												
Agric.	.177	-.088	.546	.500	.483	1.000											
Forestry	.041	-.009	.557	.608	.513	.471	1.000										
Recreat.	.187	.028	.628	.672	.575	.474	.439	1.000									
Plan. & Dev.	.152	.005	.572	.587	.499	.355	.474	.742	1.000								
Education	.212	-.210	.415	.299	.258	.239	.344	.378	.359	1.000							
Health & Med.	.118	-.044	.199	.250	.284	.313	.273	.316	.300	.598	1.000						
Industry	.019	.118	.337	.395	.368	.198	.479	.425	.397	.472	.514	1.000					
Employ.	.177	-.088	.397	.500	.398	.375	.323	.474	.519	.478	.500	.553	1.000				
Trans.	.200	.035	.465	.334	.299	.492	.394	.274	.324	.386	.452	.510	.374	1.000			
Housing	-.023	.159	.254	.334	.299	.197	.254	.274	.402	.329	.570	.454	.551	.498	1.000		
Com. Fac. & Ser.	.079	.053	.471	.532	.439	.301	.305	.541	.582	.271	.324	.358	.439	.395	.526	1.000	
Impr. Econ. Opp.	.353	.021	.225	.418	.394	.299	.225	.302	.346	.143	.239	.265	.299	.461	.292	.260	1.000

derived for each of the indicators in the maximum correlation show their relative importance in both the concept of "effectiveness" and the formation of the attitudes toward that concept.

The technique of canonical analysis yields results in so-called "dimensions"[1] in which certain variables are isolated in relation to the variables in both sets. Only the first dimension of a possible seventeen in each of the first five canonical analyses will be reported here as the first extraction yields the maximum correlation for interpretative purposes. In addition, only those variables with weights, .4500 are reported. It is from this first and maximum correlation in each of the first five computations that the variables used in the sixth and final canonical model were chosen (see Tables 15 - 19).

In the first canonical model, where the criterion set is correlated with the predictor set consisting of socio-

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[1]"Dimensions" may be thought of as defining a multi-dimensional space with "attitudes of effectiveness" being defined by coordinates determined by the interaction of the independent variables within that space. Dimensions can also be thought of as seventeen distinct relationships of "effectiveness". Each of these relationships is a stage for a relatively distinct type of attitude toward program effectiveness.

economic indicators,[1] the over-all canonical coefficient, R equals .9598. This means that there is near perfect agreement between the two sets of variables. The highest weight from the total of seventeen variables in the criterion set was assigned to "Water" as a problem area where RC&D contributes to problem solution and, hence, to program effectiveness. The predictor variables standing out were those related to education and occupation (see Table 15).

These results can be interpreted as meaning that there is a negative association between the higher levels of education and positive opinions of program effectiveness in general, and to opinions of RC&D's contribution to problem solving in water related areas specifically. This can be explained by assuming that higher levels of education tend to promote higher levels of critical judgement, longer spans of decision making or the suspension of judgement until further evidence can support positive conclusions.

Of all the occupations indicated by the RC&D committeemen (20), the farming profession sees the RC&D effort as least effective. The other three occupational groups

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[1]Predictor variables consisted of: age, education, proximity to economic place, occupation, income. The total number is thirty-nine.

Table 15

Results of the First Canonical Analysis

Canonical Coefficient, R = .9598, p<.05	
Variables	
Effectiveness	
.5515 - Water	
Socio-Economic	
-1.8745 - college graduate	
- .7657 - high school only	
- .7457 - farmer	
- .5221 - did not complete high school	
- .5161 - some college	
- .4644 - special training	
.4986 - civil engineer	
.6351 - extension agent	
.8964 - forester	

singled out were positively correlated to affirmative opinions of effectiveness.

In the second canonical correlation computation the same "effectiveness" criterion variables were correlated with the variables representing "problem perceptions".[1] The canonical coefficient for both sets was .8905. In this second correlation the dimension dealing with the program's contribution to the solution of "Land" related problems is isolated. Interestingly, those variables directly related to "Land" such as, water,

[1]Predictor variables included: perceptions of economic conditions, perceptions of both the social and natural environments and, respondents' perceptions of RC&D goals. The total number of variables is 25.

agriculture, environment and, planning and development were not perceived as important goal priorities by the respondents. Instead, those holding the opinion that education is important in terms of RC&D goals were highly correlated with the view that the program has contributed effectively to the solution of land related problems. There is an equally strong but negative association with the respondents' perception of the social environment. Obviously, those who feel the program is effective in land related problems are disappointed with its contribution to social problems.

Table 16

Results of Second Canonical Analysis

Canonical Coefficient, R = .8905, $p < .10$
Variables
Effectiveness
1.3358 - Land
.7770 - Slightly effective
Problem Perceptions
-.5357 - social environment - improving slowly
-.5203 - social environment - stabilized
.5226 - goal perception - education

The third canonical correlation singled out "transportation" in the first dimension as its effectiveness contribution. The overall canonical coefficient for both sets is again high, .9626. The predictor set consisted of

those variables representing roles within the community and role relations to the RC&D program as well as residence and tenure.[1] Here the analysis isolates no less than eleven variables highly correlated to the "transportation" dimension. There is a very strong positive association between affirmative attitudes and years of residence in Michigan. As tenure increases, the weights assigned to this category also increase. The longer the period of residence within the state, the higher the correlation with positive attitudes toward RC&D. On the other hand, length of residence within is not correlated as strongly but shows a slight inverse relationship between length of residence and positive attitudes. Those respondents having lived in their county a shorter period of time seem to possess a "more positive" concept of RC&D effectiveness. Here it is assumed that the long-time residents of the counties have witnessed what they perceive as a continuing decline in the natural and social environments but see no real change for the better as a result of the RC&D program and may view the development of such things as transportation, recreation, industry and tourism as further deterioration of their environment.

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[1]Predictor variables included social structure identification variables of: current and past roles within the community and RC&D, leadership identification, initial contact with RC&D and, length of residence within the state, RC&D area and county. The total is 39.

The committeemen holding the above characteristics and holding a positive opinion of the programs' effectiveness are also negatively associated with the role related to the soil conservation districts and were first introduced to RC&D through an organization or group related to environmental concerns.

Table 17

Results of Third Canonical Analysis

Canonical Coefficient, R = .9626, $p < .10$	
Variables	
Effectiveness	
.6270	Transportation
Role Relations and Tenure	
.9528	Years Residence in Mich - 20-29
1.0827	" " " " - 30-39
1.5759	" " " " - 40-49
1.5908	" " " " - 50-59
1.6874	" " " " - 60 plus
.6174	Years Residence in County - less than 20
.4818	" " " " - 20-29
.5691	" " " " - 50-59
-.4469	Soil Conservation District - role
-.5016	Initial contact with RC&D - environment
.6757	Type leader involved - Co. Steering Comm.

The fourth canonical correlation yielded an overall canonical coefficient of .9901. This time the predictor set consisted of factors related to membership in human and natural resource oriented organizations within the community

and the recognition of those organizations most influential in the community.[1]

The maximum correlation shows attitudes toward the problem area of "Recreation" and RC&D's valuable contribution to the solution of such problems as having the highest positive weight. The predictor correlates that are most highly weighted in forming that attitudinal dimension are those related to the influential organizations: Agriculture, Planning and Development, Community Facilities and Services, Recreation and, Housing. Those respondents recognizing the above organizations as most influential are negatively correlated to an affirmative view of program effectiveness. It is assumed that those persons most closely associated to the organizations perceived as having the most influence within the community are most critical of RC&D's contributions to the community. They see, in particular, no apparent contribution to the provision of recreation opportunity. (Table 18)

The lowest of the canonical coefficients for both sets was found in canonical analysis number five with .7644. This, nevertheless, is a strong correlation in the first dimension. In that first extraction, "Planning and

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[1]Specifically the predictor set included a total of 49 variables consisting of the respondents' identification of: influential human and natural resource oriented organizations and, their membership in human and natural resource organizations.

Table 18

Results of Fourth Canonical Analysis

Canonical Coefficient, R = .9901, $p < .05$	
Variables	
Effectiveness	
.8387 - Recreation	
Membership	
-.7221 - Most Influential Organ.	- #1 Agric.
-.5099 - " " "	- " Plan & Dev.
-.7844 - " " "	- " Com. Fac. & Ser.
-.5179 - " " "	- #2 Recreation
-.4426 - " " "	- " Housing
.4573 - Membership	- Transportation
-.8123 - "	- Recreation

Development" was isolated as the surrogate for program effectiveness. In the correlation of the criterion set and predictor set of variables representing "Goal Perception",[1] the variables relating to community awareness of the RC&D effort were positively weighted. Here, those respondents feeling that the community was at least somewhat aware of the program were positively correlated with affirmative attitudes. Local leadership, general leader activity and propensity to change the program were inversely related to

[1]A total of 12 predictor variables include: availability of formal goals, efforts to interest people in RC&D at local or community level, proposal forwarding by committeemen, community awareness of RC&D, leadership activity and leadership involvement and, respondents' propensity to change the program if they had the authority to do so.

positive attitudes. This can be interpreted as meaning that even though the decision makers feel that the RC&D leadership is active in the program there is little effective outcome from the effort. Those wanting to change the program would logically feel the present form is ineffective in achieving the program goals (see Table 19).

Table 19

Results of Fifth Canonical Analysis

Canonical Coefficient, R = .7644, $p < .10$	
Variables	
Effectiveness	
.5284 - Planning and Development	
Goal Perceptions	
.4941 - Community Familiarity with RC&D	- Very Well
.5534 - " " " "	- Somewhat
.4589 - " " " "	- Not Very Well
-.4910 - Local Leadership Involved	- Yes
-.7573 - General Leadership Active	- Yes
-.6496 - Propensity to Change Program	- Yes

The sixth canonical model was constructed using the factors possessing the highest weights in the previous five canonical correlations. A total of thirty-eight variables were used in the new composite predictor set. The criterion set remained the same.

Table 20, reports the first fifteen dimensions of a possible seventeen. Beyond the fifteenth extraction the canonical coefficients diminished rapidly and dropped below .5000, indicating weak statistical relationships between independent correlations of both individual variables and sets of variables.

The final equation relating "attitudes toward program effectiveness" and the composite set of predictor variables will be taken from the maximum canonical correlation, i.e., the first independent extraction with the highest canonical coefficient. The first dimension, being the maximum correlation between sets of variables, is the best correlation obtainable using linear combinations of all variables.

In discussing the results of the sixth canonical computation, however, fifteen dimensions will be reported but only those variables with a canonical weight of $\pm$.5000 or higher will be listed beyond the first extraction for clarity and convenience. Further, there is some question regarding the interpretation of results beyond the first extraction or dimension. The new relationships established in the second through seventeenth dimensions are interpretable but become increasingly questionable in terms of any obvious identification with "real" relationships. The possibility exists that extractions beyond the first dimension are merely artifacts brought out by the elegance

of the mathematical manipulation. In either case, the mathematical outcome cannot be mistaken for wisdom but merely must be regarded as a clue to an intelligent description of the system of attitudes under study. For that reason canonical analysis was used to sift through the plethora of available data. In so doing it was possible to determine those factors most important to the problem.[1] The technique simply points out relationships not obtainable by the use of simple correlation. It identifies important clusters of variables as they relate to the explanation of the variance in positive attitudes toward program effectiveness.

In the first dimension, the canonical coefficient for the total was .9614. Within the criterion set the variable with the highest canonical weight was Water (1.2699). This means that RC&D's contribution to problem solution within the community is best exemplified by its contribution to the solution of water related problems. Further, it can be said that those respondents who feel RC&D has been effective in its contribution to water related problems also feel the program has contributed effectively to Transportation problem solution. Among those respondents who hold such

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[1]Carl E. Hopkins, "Statistical Analysis by Canonical Correlations: A Computer Application," Health Services Research, Vol. 4 (1969), 312.

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Table 20

Results of Sixth Canonical Analysis

Dimension (Root)	1	2	3	4	5	6	7
Canonical Coefficient ($p < .05$)	.9614	.9406	.9296	.9241	.8805	.8583	.8350
Variables							
Criterion Set							
X_1 - Effective	.4180						
X_1^2 - Slightly Effective	-.0467						
X_2^3 - Valuable Contrib. - Envir.	-.5900					.7208	
X_3^4 - " " - Land	-.4028	-1.3278					
X_4^5 - " " - Water	1.2699	1.2015					
X_5^6 - " " - Agric.	-.0727						
X_6^7 - " " - Forestry	.0265					-.7196	
X_7^8 - " " - Recreation	.0854		.9993				
X_8^9 - " " - Plan. & Dev.	-.1787		-1.0953				
X_9^{10} - " " - Education	.3563				-.7536		
X_{10}^{11} - " " - Health & Med.	-.5963					.5383	
X_{11}^{12} - " " - Industry	.1368			.5346			-.6170
X_{12}^{13} - " " - Employment	.0335			-.6219			
X_{13}^{14} - " " - Trans.	.5701						
X_{14}^{15} - " " - Housing	.0628						
X_{15}^{16} - " " - Com. Fac.	-.1942						.6856
X_{16}^{17} - Improved Econ. Opport.	-.2249						
Predictor Set							
X_{17} - Role - SCD	.5260						.6546
X_{18} - Social Env. - Impr. Slowly	.6615			-.5874			.5024
X_{19} - " " - Stablized	.4043			-.7390	.5510		
X_{20} - Comm. Awareness - Very	-.3119				.5913		-.5341

X_{22}	- Comm. Awareness - Somewhat	-.5146		.5667		.7170	
X_{23}	- " " - Not Very	-.5051				.9110	-.6506	-.6809
X_{24}	- Local Leadership Involv.	-.2358					
X_{25}	- General Leader Active	.0238					
X_{26}	- Propensity to Change	-.2833					.4488
X_{27}	- Education - Did not Compl. H.S.	.5402				-.5071	
X_{28}	- " - High School only	-.1767	-.6401	.5019			-.6359
X_{29}	- " - Some College	.0919				-.5182	
X_{30}	- " - College Graduate	-.4260				-.8614	-1.5001
X_{31}	- " - Other Training	.1541					
X_{32}	- Years Res. in Mich. - 20-29	-1.1389					-.8087	-2.1056
X_{33}	- " " " " - 30-39	-1.6644					-1.1052	-2.8757
X_{34}	- " " " " - 40-49	-2.0024	.5057				-1.5381	-2.8540
X_{35}	- " " " " - 50-59	-1.2692	.6198				-1.8612	-3.7816
X_{36}	- " " " " - 60 plus	-1.2692					-1.3546	
X_{37}	- Occupation - Extension Agent	-.0343					.5310	.4960
X_{38}	- " - Farmer	-.5217			.5093			-.9719
X_{39}	- " - Forester	.1167						.5296
X_{40}	- " - Civil Engineer	-.1258						
X_{41}	- Initial Contact - Environment	-.1001						
X_{42}	- Most Influential Organ. #1-Land	.2225						
X_{43}	- " " " "-Agri.	.2126						
X_{44}	- " " " "-Pl. & D	.0155						
X_{45}	- " " " "-Com. Fac.	.1588						
X_{46}	- " " " #2-Rec.	-.1961						
X_{47}	- " " " "-Hous.	-.3982			-.6697			-.5320
X_{48}	- " " " #3-Hous.	.3595		.5196				
X_{49}	- Membership - Transportation	.7486						.5268
X_{50}	- " - Recreation	.0867						
X_{51}	- Type of Leader Involvement - CSC	.2925			.6301			
X_{52}	- Goal Perception - Education	-.3605						
X_{53}	- Years Res. in County - less 20	.2836	-.5964		.5778			
X_{54}	- " " " " - 20-29	.1099						
X_{55}	- " " " " - 50-59	.3842						

Table 20 (cont'd)

Dimension (Root)	8	9	10	11	12	13	14
Canonical Coefficient	.7999	.7649	.6825	.6601	.6188	.6034	.5701
Variables							
Criterion Set							
X_1 - Effective							
X_1^2 - Slightly Effective							
X_3 - Valuable Contrib. - Envir.	.7010		.9650				
X_4 - " " - Land				.8632			
X_5 - " " - Water							
X_6 - " " - Agric.			-.8495			.5838	
X_7 - " " - Forestry					-.7206		
X_8 - " " - Recreation							.5746
X_9 - " " - Plan. & Dev.		.5668					
X_{10} - " " - Education							
X_{11} - " " - Health & Med.						-.8686	
X_{12} - " " - Industry					.9191		
X_{13} - " " - Employment							
X_{14} - " " - Trans.	-.7723						
X_{15} - " " - Housing							
X_{16} - " " - Com. Fac.		-.6277					
X_{17} - Improved Econ. Opport.				-.9120			.6022
Predictor Set							
X_{18} - Role - SCD							
X_{19} - Social Env. - Impr. Slowly			-.6147		.5061	.5472	
X_{20} - " " - Stabilized							
X_{21} - Comm. Awareness - Very							

X_{22}- Comm. Awareness - Somewhat				.7461		.5845	.5107
X_{23}- " " - Not Very				.9577		.6788	
X_{24}- Local Leadership Involv.							-.6224
X_{25}- General Leader Active							
X_{26}- Propensity to Change	.6842			-.5225			
X_{27}- Education - Did not Compl. H.S.							-.6780
X_{28}- " - High School only						-.6044	
X_{29}- " - Some College					.7253	-.5055	-.8568
X_{30}- " - College Graduate			.5267			-.9934	-.9487
X_{31}- " - Other Training							
X_{32}- Years Res. in Mich. - 20-29	-.7475	1.4789	1.8061	-1.3795	-1.3330	-.5851	-.8849
X_{33}- " " " " - 30-39	-.8971	1.5481	2.4321	-1.3287	-1.3759	-.7428	-.5679
X_{34}- " " " " - 40-49	-.7084	1.3913	2.6129	-1.1619	-1.4793	-1.2677	-.6770
X_{35}- " " " " - 50-59		1.3487	3.1040	-1.2308	-2.2296	-.9266	-1.3149
X_{36}- " " " " - 60 plus		1.1356	2.1634	-1.5397	-1.2037	-.8268	-.5872
X_{37}- Occupation - Extension Agent					.6990		
X_{38}- " - Farmer							
X_{39}- " - Forester							
X_{40}- " - Civil Engineer							
X_{41}- Initial Contact - Environment							
X_{42}- Most Influential Organ. #1-Land							
X_{43}- " " " "-Agri.							-.6321
X_{44}- " " " "-Pl. & D			.6189				-.6051
X_{45}- " " " "-Com. Fac.		.7746	.5961		-.6066		-.7580
X_{46}- " " " #2-Rec.							
X_{47}- " " " "-Hous.		.5196					
X_{48}- " " " #3-Hous.							
X_{49}- Membership - Transportation	.8598						
X_{50}- " - Recreation							.7068
X_{51}- Type of Leader Involvement - CSC							
X_{52}- Goal Perception - Education		-.4917					
X_{53}- Years Res. in County - less 20					.5484		
X_{54}- " " " " - 20-29					.6613		
X_{55}- " " " " - 50-59			-.5453		.5660		.5300

Table 20 (cont'd)

Dimension (Root)	15
Canonical Coefficient	.5417

Variables

Criterion Set

X_1	- Effective	
X_2	- Slightly Effective	
X_3	- Valuable Contrib. - Envir.	
X_4	- " " - Land	-1.2135
X_5	- " " - Water	
X_6	- " " - Agric.	
X_7	- " " - Forestry	
X_8	- " " - Recreation	.5746
X_9	- " " - Plan. & Dev.	
X_{10}	- " " - Education	
X_{11}	- " " - Health & Med.	
X_{12}	- " " - Industry	
X_{13}	- " " - Employment	
X_{14}	- " " - Trans.	
X_{15}	- " " - Housing	
X_{16}	- " " - Com. Fac.	
X_{17}	- Improved Econ. Opport.	

Predictor Set

X_{18}	- Role - SCD
X_{19}	- Social Env. - Impr. Slowly
X_{20}	- " " - Stabilized

X_{21}	Comm. Awareness - Very	
X_{21}	" " - Somewhat	.8096
X_{22}	" " - Not Very	.5213
X_{23}	Local Leadership Involv.	
X_{24}	General Leader Active	
X_{25}	Propensity to Change	
X_{26}	Education - Did not Compl. H.S.	
X_{27}	" - High School only	
X_{28}	" - Some College	
X_{29}	" - College Graduate	.6603
X_{30}	" - Other Training	
X_{31}	Years Res. in Mich. - 20-29	.9106
X_{32}	" " " " - 30-39	1.0318
X_{33}	" " " " - 40-49	.8078
X_{34}	" " " " - 50-59	1.2732
X_{35}	" " " " - 60 plus	.7379
X_{36}	Occupation - Extension Agent	
X_{37}	" - Farmer	
X_{38}	" - Forester	
X_{39}	" - Civil Engineer	
X_{40}	Initial Contact - Environment	
X_{41}	Most Influential Organ. #1-Land	
X_{42}	" " " "-Agri.	
X_{43}	" " " "-Pl. & D	
X_{44}	" " " "-Com. Fac.	
X_{45}		
X_{46}	" " " #2-Rec.	
X_{47}	" " " "-Hous.	
X_{48}	" " " #3-Hous.	
X_{49}	Membership - Transportation	
X_{50}	" - Recreation	
X_{51}	Type of Leader Involvement - CSC	
X_{52}	Goal Perception - Education	
X_{53}	Years Res. in County - less 20	
X_{54}	" " " " - 20-29	
X_{55}	" " " " - 50-59	

Table 20 (cont'd)

Dimension (Root)	15
Canonical Coefficient	.5417

Variables

Criterion Set	
X_1 - Effective	
X_2 - Slightly Effective	
X_3 - Valuable Contrib. - Envir.	
X_4 - " " - Land	-1.2135
X_5 - " " - Water	
X_6 - " " - Agric.	
X_7 - " " - Forestry	
X_8 - " " - Recreation	.5746
X_9 - " " - Plan. & Dev.	
X_{10} - " " - Education	
X_{11} - " " - Health & Med.	
X_{12} - " " - Industry	
X_{13} - " " - Employment	
X_{14} - " " - Trans.	
X_{15} - " " - Housing	
X_{16} - " " - Com. Fac.	
X_{17} - Improved Econ. Opport.	
Predictor Set	
X_{18} - Role - SCD	
X_{19} - Social Env. - Impr. Slowly	
X_{20} - " " - Stabilized	

X_{21}	Comm. Awareness - Very	
X_{22}	" " - Somewhat	.8096
X_{23}	" " - Not Very	.5213
X_{24}	Local Leadership Involv.	
X_{25}	General Leader Active	
X_{26}	Propensity to Change	
X_{27}	Education - Did not Compl. H.S.	
X_{28}	" - High School only	
X_{29}	" - Some College	
X_{30}	" - College Graduate	.6603
X_{31}	" - Other Training	
X_{32}	Years Res. in Mich. - 20-29	.9106
X_{33}	" " " " - 30-39	1.0318
X_{34}	" " " " - 40-49	.8078
X_{35}	" " " " - 50-59	1.2732
X_{36}	" " " " - 60 plus	.7379
X_{37}	Occupation - Extension Agent	
X_{38}	" - Farmer	
X_{39}	" - Forester	
X_{40}	" - Civil Engineer	
X_{41}	Initial Contact - Environment	
X_{42}	Most Influential Organ. #1-Land	
X_{43}	" " " "-Agri.	
X_{44}	" " " "-Pl. & D	
X_{45}	" " " "-Com. Fac.	
X_{46}	" " " #2-Rec.	
X_{47}	" " " "-Hous.	
X_{48}	" " " #3-Hous.	
X_{49}	Membership - Transportation	
X_{50}	" - Recreation	
X_{51}	Type of Leader Involvement - CSC	
X_{52}	Goal Perception - Education	
X_{53}	Years Res. in County - less 20	
X_{54}	" " " " - 20-29	
X_{55}	" " " " - 50-59	

opinions the correlates indicating their role as SCD director (.5260), their perception of a slowly improving social environment (.6615), their relatively low educational achievement (.5402), i.e., did not complete high school, and their membership in transportation related organizations (.7486) are positively weighted. Moreover, these attitudes are negatively weighted in relation to a feeling that the RC&D program in "somewhat" and "not very well" known within the community (-.5146 and -.5051). It also appears that such opinions are highly correlated to years residence in Michigan. With increasing length of tenure there exists increasing dissatisfaction with the program's effectiveness. Farmers, likewise, view the program as ineffective (-.5217) in terms of its contribution to water and transportation problem solution.

Such relationships appear to make sense. A soil conservation district affiliated role would likely be concerned with water resources and would judge his role as decision maker within the RC&D effort in a positive way in relation to such contributions. This type of relationship becomes important when speaking to the notion of positive attitudes functioning to favor positive outcomes.

It also follows that the decision maker who sees his community's social environment as improving would find reason to assess the program, not only in natural resource development but in human resource development, in a

positive way. Membership in a transportation oriented organization (e.g., county road commission) would also tend to correlate positively with attitudes toward valuable contributions in the field of transportation.

Further, it can be noted in Table 20 that as education levels rise there is a general decrease in the strength of association to positive opinions of program effectiveness. Here again, those persons to whom the program theoretically should provide the most benefits in human resource development areas regard the program effort more favorably, while those more highly educated possess a more critical judgement and longer periods of assessment in light of actual outcomes.

Residence and tenure, likewise, seems to play an important role in attitude formation. Although all categories dealing with length of residence in Michigan are negatively correlated, it is interesting to again note in this sixth model that increasing length of residence within the state up to "60 plus" years evokes increasingly higher negative weights. This is assumed to be the result of, as mentioned earlier, a witnessing, on the part of the long-time residents, of what they perceive as a continuing deterioration of their environment and a negative view of any significant program achievement. The shorter term residents, on the other hand, have witnessed no similar long-term deterioration and can look to the future with

perceived longer planning horizons and therefore, at least, somewhat less skepticism with regard to the program and its effectiveness.

It can also be noted from Table 20 that "Land" and "Agriculture" organizations are weakly correlated to positive attitudes. Although farmers are well represented in the decision making body, their perception of influential organizations representing their vested interests is weak. They, it is assumed, then feel that agriculture in general is receiving little attention and view the program from that perspective. This same feeling is noted in the criterion set as well where the program's contributions to problem solution in agriculturally related areas is weakly weighted (-.0727).

The second dimension with a canonical coefficient of .9406, emphasizes the RC&D contribution to the solution of "Land" (-1.3278) and "Water" (1.2015) related problems. These variables are associated with the composite predictor variables of: education - high school only (-.6401), years residence in Michigan - 40-49 years (.5057), 50-59 years (.6198), and years residence in county - less than 20 years (-.5964).

This dimension can be interpreted as meaning that those respondents having lived within the State longer periods of time will view the RC&D program an ineffective. Those respondents with one or more of the above attributes

or opinions will have lived in their county of residence for less than twenty years and will have completed high school.

The third dimension with a canonical coefficient of -9296, emphasizes RC&D's valuable contribution to the solution of Recreation proglems (.9993). Planning and Development is also highly weighted (-1.0953). Associated predictor correlates include: opinions that the community is only "somewhat" aware of RC&D (.5667), high school education level (.5019), and a perception that an influential organization within the community is identified with Housing (.5196).

Dimension four (.9241) interestingly isolates "Industry" (.5346) and "Employment" (-.6219). Their predictor correlates include: a perception of an improving social environment (-.5874) and a stabilized social environment (-.7390). Although the decision makers holding the perception of the social environment as stabilized to improving would logically view the RC&D contribution to employment as favorable, they, on the other hand, are less likely to view RC&D as contributing to industrial development within the region. The respondents holding such opinions, in addition, will tend to be long-time residents of both the State and county. Farmers (.5093) tend to view employment negatively but view the industrial development contribution positively. Those respondents with the above views and

characteristics also recognize housing type organizations (-.6697) as influential and see at least one of their community leaders involved with RC&D at the county steering committee level (.6301).

Dimension five shows an increasingly diminishing canonical coefficient (.8805). When the canonical coefficients decrease rapidly the researcher should be cautious in further interpretation of following dimensions. In this case, even though "Education" (-.7536) and "Health and Medical Services" (.5383) are highly weighted as positive contributions to program effectiveness, the predictor correlates with high canonical weights are less emphatic.

The results of this fifth extraction can cautiously be interpreted as meaning that those respondents not having completed high school or with some college or college degree tend to increasingly hold the opinion that RC&D has contributed to the solution of education problems. The decision makers with those characteristics are, however, negatively associated with opinions concerning RC&D's contribution to problem solution in the field of Health and Medical Services. These same persons view the social environment as stabilized and tend to feel that the program, if not very well known, is at least somewhat known to the residents of the RC&D area.

In the sixth extraction (canonical coefficient, .8583) the factor related to the program's valuable contribution to the solution of "environment" problems is isolated. "Forestry" is nearly equal in weight but possesses the opposite sign. The predictor correlates most highly associated with this dimension are: the occupational category - extension agent, years residence in Michigan, opinions of a stabilized social environment, and a feeling that the program is not very well known in the community.

Logically the occupation of agricultural extension agent would find RC&D as a valuable contributor to the solution of environmental problems as the agricultural extension role is more concerned with natural resource problems. The respondents holding those opinions are increasingly correlated in an inverse way with longer periods of residence within the state.

Beyond the sixth extraction (see Table 20) the relationships between criterion and predictor variables appear to become more obscure and tend to be less realistic. The relationship between weights as well as direction of their signs appear without a recognizable pattern. The sixth dimension, then, is a logical departure from further analysis and interpretation. The remaining dimensions are reported in Table 20 for comparative purposes only.

Summary of Sixth Canonical Analysis

In summary, the occupation of farming, the role of SCD director as related to RC&D, years residence in Michigan, education and opinions regarding the community's awareness of the RC&D effort are variables most closely associated with opinions of program effectiveness. From these results of canonical analysis an equation for relating positive opinions of program effectiveness to the predictor variables will be constructed and discussed in the following chapter.

Factor Analysis With Canonical Analysis

The Economic Research Service data file provided a listing of all factors isolated by factor analyzing all 368 variables from the questionnaire survey (see Appendix B). The list of fifty factors was used in canonical analysis as the predictor set. In this seventh canonical correlation the criterion set consisted of the same seventeen variables used in previous computations. Interestingly, the results of the factor analysis singled out nearly the same variables for further analysis as did the methods of preliminary analysis used in the first six canonical computations. Factor analysis did, however, identify a series of variables related to the respondents' recognition of certain problem categories. These twenty variables were not included in the original five canonical correlations as predictor variables.

The use of the Economic Research Service data derived from factor analyzing all variables provided further data from which to assess the formation of positive attitudes toward program effectiveness. The results of this seventh canonical correlation is reported in Table 21. Only the first dimension is reported and interpreted. The results are then compared in equation form to previously discussed canonical correlation results.

The first dimension of this seventh canonical correlation possesses a canonical coefficient relating both sets of: .9991. The first dimension isolates RC&D's valuable contribution to the solution of Health and Medical Services problems (.7516). Those respondents holding that particular view of RC&D effectiveness also see the natural environment as improving (.6967), see their program leaders as active (.4992) and tend to be in the higher income groups (.8756). There is an inverse association between the positive view of program effectiveness and the opinion regarding a lack of industrial development (-.6276), formal county goals (-.6219), familiarity with RC&D (-.6855 and -.5191), and membership in Land and Agricultural organizations.

The associations identified by canonical analysis logically pattern themselves. Those respondents holding a positive opinion of program effectiveness from the point

Table 21

Results of Canonical Analysis Using the Results of Factor Analysis as Predictor Set

Variables	Canonical Weights (Canonical Coefficient = .9991)
Criterion	
X_1 - Effective	.2478
X_2 - Slightly Effective	-.1822
X_3 - Valuable Contribution - Environment	.5751
X_4 - " " - Land	-.3637
X_5 - " " - Water	.0841
X_6 - " " - Agriculture	-.0927
X_7 - " " - Forestry	.4554
X_8 - " " - Recreation	.2585
X_9 - " " - Plan. & Dev.	.1030
X_{10} - " " - Education	-.7066
X_{11} - " " - Health & Med.	.7516
X_{12} - " " - Industry	-.0087
X_{13} - " " - Employment	.1802
X_{14} - " " - Transportation	-.0517
X_{15} - " " - Housing	-.5324
X_{16} - " " - Com. Fac. & Ser.	-.1086
X_{17} - Improved Economic Opportunity	-.3976
Predictor	
X_{18} - Economic Perception - Growing	-.3491
X_{19} - " " - Declining	-.2436
X_{20} - Natural Environment Perception - Improving	.6967
X_{21} - " " " - Deterior.	.4543
X_{22} - Social Environment Perception - Improving	-.2703
X_{23} - " " " - Deterior.	-.0438
X_{24} - Environmental Problems - Natural Beauty	.1709
X_{25} - " " - Changing Land Use	-.2584
X_{26} - Land Problem - Erosion	-.1560
X_{27} - " " - Industrial Development	-.2700
X_{28} - Water Problems - Pollution	-.1320
X_{29} - Agriculture Problems - Income	.0017
X_{30} - Forestry Problems - Marketing	.1509

X_{31}	- Recreation Problems - Public Access	-.1860
X_{32}	- " " - Underdevelopment	.2598
X_{33}	- " " - Overdevelopment	.2731
X_{34}	- " " - Financing	-.0087
X_{35}	- Plan. & Devel. Problems - Comp. Plan	.2773
X_{36}	- Education Problems - Vocational	.3903
X_{37}	- Health & Med. Serv. Probl. - Med. Pers.	-.2935
X_{38}	- " " " " - Facil.	.3688
X_{39}	- Industry Problems - Lack of Devel.	-.6276
X_{40}	- Employment Problems - Lack of Training	-.1436
X_{41}	- " " - Lack of Ind. & Bus.	.4730
X_{42}	- Com. Fac. & Serv. Prob. - Water Suppl. & Dist.	.3833
X_{43}	- " " " " - Hist. & Cult. Dev.	-.0630
X_{44}	- Formal County Goals	-.6219
X_{45}	- Familiarity with RC&D - Somewhat	-.6855
X_{46}	- " " " - Not Very Well	-.5191
X_{47}	- General Leader Active	.4992
X_{48}	- Improve if Active	.4011
X_{49}	- Tenure & Related Role - Yrs. SCD	.4540
X_{50}	- " " " - Yrs. Co. St. Comm.	.2180
X_{51}	- Age - 30-49	-.3859
X_{52}	- " - 50-60 plus	-.0599
X_{53}	- Education - Did not complete High School	.2599
X_{54}	- " - Some College & College Grad.	.1930
X_{55}	- Distance to Econ. Place - 10 plus miles	.4159
X_{56}	- Occupation - Farmer	.1264
X_{57}	- " - Manager or Owner	-.2918
X_{58}	- Income - less than $5,000 to $15,000	.5039
X_{59}	- " - $15,001 to $20,000 plus	.8756
X_{60}	- Initial Contact - Agriculture	.2209
X_{61}	- " " - Comm. Fac. & Serv.	.4355
X_{62}	- Membership - Housing	-.0929
X_{63}	- " - Comm. Fac. & Serv.	-.1204
X_{64}	- " - Land	-.7502
X_{65}	- " - Agriculture	-.5627
X_{66}	- " - Recreation	-.1202
X_{67}	- Membership - Planning & Devel.	.0435

$p < .05$

of view of human resource concerns would tend to be in higher income groups where serious deficiencies in service to human needs and employment are not felt as seriously as in lower income groups. Those respondents belonging to natural resource oriented organizations, being more closely allied to such concerns, would tend to view human resource contributions with skepticism based upon lack of familiarity or knowledge of the RC&D effort in this area. Yet, those who feel the program is effective also feel that the community in general is not well enough acquainted with the program.

So it appears that by using the variables isolated by factor analysis in the predictor set in canonical analysis, there is no significant difference in attitude formation even with the addition of the respondent's "problem identification" variables. Similar opinions and characteristics are identified in the seventh correlation as were identified in the pervious six canonical computations. There is some degree of continuity between the two methods of isolating significant explanatory variables.

Summary

The method of canonical correlation analysis provides insight into the complex concept of attitude formation by providing the researcher with weighting coefficients or measures of association between variables and sets of variables. Although arranging the predictor sets into five

separate and conceptually independent blocks of indicators is theoretically not necessary in canonical correlation, the computer capacity and number of variables involved necessitated such arrangement. The results of the sixth canonical computation using the composite predictor set of variables constructed through the process of elimination was not significantly different from the results of the seventh canonical computation using the factors isolated by factor analysis as the predictor set. Both methods separately and in combination yield valuable information pertaining to an understanding of underlying socio-economic and perceptual constructs of committee members holding positive attitudes toward program effectiveness. The results of both methods are presented in equation form and discussed in terms of their modelling implications in the following chapter.

CHAPTER V

RESULTS OF ANALYSIS IN EQUATION FORM

Models are simply representations of various conditions, objects or events. The principle advantage inherent in the model is the fact that it is less complicated than reality and therefore easier to use.

A model which can be used to predict a future outcome may, in fact, not be suitable for controlling that outcome. On the other hand, such a predictive model may be useful in developing yet another model which permits control.[1] The models which are shown in this report are cases in point. Both equations are predictions but neither can be used for controlling the outcome of attitudes. Yet each can, theoretically, be used to predict outcomes as a result in changes in parameters and, hence, permit the control of such changes to enhance a desired outcome.

> "In the case in which we do not understand the phenomenon involved - that is, do not know how to manipulate the outcome of the decision - we normally begin by listing all the variables we believe might be causally related to the outcome...
>
> What we do next depends on whether or not

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[1]Russell L. Ackoff, Scientific Method (New York: John Wiley & Sons, Inc., 1962), 113.

> we can manipulate the variables listed. If we can bring the phenomenon into the laboratory or can control them in their natural setting, we can then conduct experiments to determine which variables are causally related to the outcome and how. If such control is not possible or practical, we must restrict ourselves to the data available from the "natural" (i.e., in context) behavior of the phenomena and we must usually resort to the methods of regression and correlation or variations thereof."[1]

Such was the task involved in this study: to determine which variables are related to positive attitudes of program effectiveness. The technique employed in the determination of significant variables also yields results in a predictive modelling sense. Since all models are approximations of reality and since reality in most cases is so complex as to make an exact representation an incredibly complex mathematical maze, an attempt was made to predict reality and maintain comprehensibility. That is, an attempt is made in the models to attain a good balance between an accurate representation of the real phenomenon of attitudes and mathematical practicality.

The principle reason for constructing a model of positive attitudes toward program effectiveness is to

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[1] Ibid., 114-115.

enable the managing agency of RC&D to determine what values of the controllable variables provide the best measure for maximizing the desired outcome of the program. The controllable variables in this case are the socio-economic and other characteristics of the steering committee members.

The models presented here rest upon two propositions. First, it is proposed that attitudes toward program effectiveness be viewed in terms of the attitudes themselves. In other words, simply consider the respondents' answers to the various questions as surrogates to their inner feeling about the RC&D project. Taken at face value such attitudes say a great deal about the program and the decision makers' operation within the program framework. Second, it has been hypothesized that positive attitudes toward program effectiveness are related to socio-economic characteristics and other variables associated with opinions and perceptions. It is presumed, therefore, that people located differently within the social structure have different attitudes based upon their perceived role and reaction within and to the social and natural environment. The degree to which these various locations within the social structure influence attitudes toward program effectiveness is equated in numerical form in the following mathematical models.

Models for Positive Attitudes Toward Program Effectiveness

With the quantitative data derived from canonical analysis the following equations have been constructed. In

the first equation, those elements whose combination most closely approximates the desires result of positive attitudes toward program effectiveness were selected by the process of elimination from the data outputs of the first five canonical analyses and used in the sixth and final correlation. The second equation, utilizing the results of the seventh canonical correlation where the predictor set consisted of variables isolated by the method of factor analysis is shown following equation one. The derived equations, then, depict those relationships that maximally correlate the sets of variables to one another from all the theoretically possible combinations and alternative relationships. Equation number one is:

Canonical Coefficient, $R = .9614$, $R^2 = .9243$

$$U = .4180X_1 - .0467X_2 - .5900X_3 - .4028X_4 + 1.2699X_5 - .0727X_6 + .0265X_7 + .0854X_8 - .1787X_9 + .3563X_{10} - .5936X_{11} + .1369X_{12} + .0335X_{13} + .5701X_{14} + .0628X_{15} - .1942X_{16} - .2249X_{17}$$

$$V = .5260X_{18} + .6615X_{19} + .4043X_{20} - .3119X_{21} - .5146X_{22} - .5051X_{23} - .2358X_{24} + .0238X_{25} - .2833X_{26} + .5402X_{27} - .1767X_{28} + .0919X_{29} - .4260X_{30} + .541X_{31} - 1.1389X_{32} - 1.6644X_{33} - 1.2966X_{34} - 2.0024X_{35} - 1.2692X_{36} - .0343X_{37} - .5217X_{38} + .1167X_{39} - .1258X_{40} - .1001X_{41} + .2225X_{42} + .2126X_{43} + .0155X_{44} + .1588X_{45} - .1961X_{46} - .3982X_{47} + .3595X_{48} + .7486X_{49} + .0867X_{50} + .2925X_{51} - .3605X_{52} + .2838X_{53} + .1099X_{54} + .3842X_{55}$$

where X_{18}, X_{19}, X_{22}, X_{23}, X_{27}, X_{32}, X_{33}, X_{34}, X_{35}, X_{36}, X_{41}, and X_{52} are most highly weighted in relation to the concept of positive attitudes toward program effectiveness (U).[1]

Equation number two:

Canonical Coefficient, R = .9991, R^2 = .9982

$$U = .2478X_1 - .1822X_2 + .5751X_3 - .3637X_4 + .0841X_5 - .0927X_6 + .4554X_7 + .2585X_8 + .1030X_9 - .7066X_{10} + .7516X_{11} - .0087X_{12} + .1802X_{13} - .0517X_{14} - .5324X_{15} - .1086X_{16} - .3976X_{17}$$

$$V = -.3491X_{18} - .2436X_{19} + .6967X_{20} + .4543X_{21} - .2703X_{22} - .0438X_{23} + .1709X_{24} - .2584X_{25} - .1560X_{26} - .2700X_{27} - .1302X_{28} + .0017X_{29} + .1509X_{30} - .1806X_{31} + .2598X_{32} + .2731X_{33} - .0087X_{34} + .2773X_{35} + .3903X_{36} - .2935X_{37} + .3588X_{38} - .6276X_{39} - .1436X_{40} + .4730X_{41} + .3833X_{42} - .0630X_{43} - .6219X_{44} - .6855X_{45} - .5191X_{46} + .4992X_{47} + .4011X_{48} + .4540X_{49} + .2180X_{50} - .3859X_{51} - .0599X_{52} + .2599X_{53} + .1930X_{54} + .4159X_{55} + .1264X_{56} - .2918X_{57} + .5039X_{58} + .8756X_{59} + .2209X_{60} + .4355X_{61} - .0929X_{62} - .1204X_{63} - .7502X_{64} - .5627X_{65} - .1202X_{66} + .0435X_{67}$$

where, X_{20}, X_{39}, X_{44}, X_{45}, X_{46}, X_{58}, X_{59}, X_{64}, and X_{65} are most highly weighted in relation to the concept of positive attitudes toward program effectiveness.[2]

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[1]For the name of each variable, $X_1 \ldots X_{52}$, see Table 20.

[2]For the name of each variable, $X_1 \ldots X_{67}$, see Table 21.

The canonical weights assigned to each variable can be interpreted similarly to regression weights. That is, the weight for each variable in each set indicates that variables relative contribution to "U", the concept of positive attitudes toward program effectiveness and, "V", the predictor or independent variables made up of socio-economic characteristics, perceptions of both natural and social environments, goals, memberships and roles.

Whereas "U" is considered the concept of positive atttitudes toward program effectiveness, the variables in "V" contribute to the variance of "U" to the extent indicated by their value and the direction of their sign. Likewise, the variables in "U" indicate their contribution to the variance in "U" and "V" by the value of their weight and direction of their sign. Further, the weights are comparable to the results of a standard prediction equation and as such are interpretable as "indices" of association between positive attitudes and the predictor variables. Such indices can then be used as measures of attitude formation in comparison to new data collected in a like manner. The equation models as stated above, according to Wilkinson, would be intervention models in which there exists an element of systems-management.[1] While it is true,

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[1]Kenneth P. Wilkinson, "Special Agency Program Accomplishments and Community Action Styles: The Case of Watershed Development," Rural Sociology, Vol. 34 (1969), 29-42.

the models could, in fact, be utilized to "program" decison makers characteristics to affect positive attitudes toward program effectiveness, the intent is not a rigid programming of social factors for development. Rather, the model is envisioned to be something akin to Wilkinson's "collaborative model in which agency and community pool their resources to solve problems jointly.[1] The agency (The Soil Conservation Service) then is the resource for the community. In turn, the attitude effectiveness model would be a resource for the agency, i.e., a model from which to analyze attitudes toward program (RC&D) effectiveness.

It must be pointed out, however, that this exploratory use of canonical analysis in the evaluation of attitudes toward a development program and in the construction of a model is precisely that - exploratory. The technique and the equation itself must be tested with new data from similar RC&D projects in order to ascertain the model's predictive capability. The technique only suggests one possible means of determining which variables or factors contribute most to the association between attitude formation and selected opinions, perceptions and characteristics of the decision makers at the county steering committee level of an RC&D Project. The canonical model

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[1] Ibid.

appears to be valid when dealing with concepts such as attitudes which by their nature are multivariate in structure and where the determination of the relative importance of the individual variables in a between set association is desired. Canonical analysis appears to be most valuable in such situations particularly where the number of variables is large and there exists, therefore, a need for a simplified description of the system or systems of association. The technique is also valuable where there is a need for a predictive model for deducing the consequences of changes in parameters of decision making structure. The equation model suggests that to enhance positive attitudes toward program effectiveness the average committeeman should be a relatively newcomer to the state, a farmer with a higher than average income and be associated with Soil Conservation Districts or other land related organizations.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Development problems at local levels are increasingly finding their ultimate redress at the federal level. At the same time, local participation is being actively sought and made an integral part of many federally sponsored programs involving both rural and urban development. It has been found that such participation by local residents in the planning and carrying out of program activities is critical in gaining positive support. Yet, little is known of the degree to which the linkage between the community and agency should be pursued. On the other hand, it is known that actual outcomes of a development program may be a function of local decision makers' attitudes toward that program. The concern of this study was with such attitudes. Specifically, the study focused upon the explanation of attitudes toward the effectiveness of the Northwest Michigan Resource Conservation and Development (RC&D) Project.

Antecedent to attitudes toward the program are the socio-economic characteristics of the decision makers,

their roles, membership and other perceptions and beliefs about their environment. Such characteristics, attitudes and beliefs were measured by personal interview survey conducted by the Economic Research Service staff in the Autumn of 1971. The results of the survey were first presented for their descriptive value of respondent characteristics and then statistically analyzed by the use of simple cross-tabulation and correlation to determine relative measures of association between the variables involved. In so doing it was possible to establish closely related sets of phenomena that would be further analyzed. The multivariate statistical technique of canonical analysis was used to determine the degree of association between attitudes toward program effectiveness held by the RC&D county steering committee members and their socio-economic characteristics, other beliefs and opinions. The results of canonical analysis determined each variable's explanatory power, expressed in weighted values, in the formation of attitudes toward program effectiveness. These weighted values attached to the individual variables can be used in constructing a predictive model for positive attitudes.

In view of the working hypothesis number one which states that there is a relationship between socio-economic characteristics of the respondents, their role relations,

reference groups, their environmental perceptions and positive attitudes toward program effectiveness, the following conclusions can be stated. The hypothesis is supported by the results of the analysis. Positive attitudes of program effectiveness held by the steering committee members in the Northwest Michigan RC&D project are most closely associated with the length of residence within the State (the longer the period of residence the likelihood of a negative opinion increased), the role related to Soil Conservation Districts, the occupation of farming, lower than average educational achievement (did not complete high school), higher than average income (more than $11,000) and, membership in transportation and land related organizations. Other opinions and perceptions most closely associated with positive attitudes toward program effectiveness include, the perception that the social and natural environment is improving, that the residents within the communities represented by the committeemen are not sufficiently aware of the RC&D effort, that there is a lack industrial development and, the steering committee members are willing to change the program to enhance its effectiveness.[1] The numerical values associated with each of the

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[1]Other perceptions and opinions are themselves social-psychological variables that are, in fact, not antecedent to opinions of effectiveness but highly related to them. They are not offered as explanation to attitude formation but offered as additional indicators for the analysis of program effectiveness. Variance is associated with other antecedent socio-economic indicators.

variables' contribution to the variance in positive attitudes have been stated in equation form. The resulting equation model restates the above mentioned relationships but in mathematical terms indicating the degree of relationship between all variables of significance to attitudes of program effectiveness.

Conclusions

In general, there are no models explicitly dealing with attitude formation within a development program involving local decision makers. There are, however, many studies indicating the relationship between attitudes and socio-economic characteristics of respondents yet none deals specifically with defining attitude formation within a setting comparable to RC&D. Further, there are no examples, to my knowledge, of the use of multivariate statistical techniques in the examination of development programs and the decision makers' attitudes toward those programs.

The objective of this study was to determine the relationships between positive attitudes of RC&D program effectiveness and other opinions, beliefs and social and economic characteristics of decision makers. In addition, new techniques were tried in the effort to determine association between such indicators and respondent characteristics. Exploring new areas of analysis and

applying the techniques to the assessment of development programs, it was hoped, would accomplish several things: first, information regarding the social structure and other information regarding the social structure and other information about the decision making process within the Northwest Michigan RC&D project would be supplied to the sponsoring agency - The Soil Conservation Service; second, such information and/or model pertaining to positive attitudes of program effectiveness held by the decision makers would provide additional resources to the sponsoring agency upon which to assess program achievement and adjust its structure to enhance outcomes; third, to develop a new analytic tool for program analysis.

It has been shown that RC&D is a relatively new U.S. Department of Agriculture effort to involve local people in the decision processes of local development. To understand, first, the attitudinal patterns of local decision makers and, second, to identify those characteristics most closely associated with such attitudes should be of value not only to the Soil Conservation Service but to all sponsoring agencies involved with local development efforts.

There is, however, a confounding variable that may or may not be of significance in attitude analysis. In either case, it could not be controlled. The three southern counties (Mason, Lake and Osceola) in the RC&D

area extend beyond the boundary of the Northwest Michigan Economic Development District and are included within the adjacent EDD. Although there is no definative measure of involvement or lack of involvement as a result of the disparity of boundaries, there is the possibility that the extension of the Northwest Michigan Economic Development District boundaries to include the three southern counties could lead to attitudinal changes within those counties. Such discontinuity may account for consistently less positive responses to RC&D effectiveness and RC&D contributions to problem solving recorded in the lower tier of counties.[1]

Recommendations

The results of this study point to a number of areas for continued research. This study is essentially an exploration in the use of certain analytic methods in the identification of the relationship between attitudes and other indicators. The equation relating the variables to one another and between sets, as mentioned can be used as a predictive model. The determination of the models predictive capacity is one important aspect of continued research.

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[1]For county by county results of the leadership survey see: D. G. Carvey, J. H. McDivitt and T. J. Kubiak, The Northwest Michigan Resource Conservation and Development Project Leadership Survey: A Summary Report (Unpublished report, Natural Resource Economics Division, Economic Research Service, U.S.D.A., 1972).

At this point, the model is merely a mathematical representation of the phenomenon called attitudes of program effectiveness. The judgement as to whether the model contains the relevant variables to explain those attitudes, whether they have been appropriately evaluated, and whether their functional form is correct, can only be tested by the use of new data from similar situations. The new data must be similarly collected and analyzed for maximum comparability. Since the model presented here is a predictive tool, testing the model with new data will be a test of its ability to predict.

One of the basic assumptions in this study was that the respondents' attitudes and opinions regarding the effectiveness of the RC&D effort in Northwest Michigan were surrogate measures for actual program outcomes or achievement. It is recognized, however, that such an assumption is not borne in fact. Attitudes of program effectiveness are merely one measure of a development program's achievement and there are other more precise and concrete measures of program outcome. As a result, it is suggested that the attitudes, perceptions and problem and action priorities measured by the questionnaire survey in this study be correlated to an objective assessment of actual program outcomes or measure adoption. Further, the attitudes and perceptions of the decision makers should again be measured and correlated to subsequent program accomplishments. Such a procedure would function both as a check on the

validity of the decision makers' reported attitudes and as a test measure of the RC&D effort itself.

The results of this study using canonical analysis as the principle analytic technique should be compared to other multivariate techniques employing the same data. Again, canonical analysis could be compared to other methods, but, more importantly there exists the possibility of gaining additional insight into the complex fabric of attitude formation.

The system of relationships involved in this study is extremely complex and the reduction of this system to numerical values should function only to simplify the relationships for further analysis and the application of new knowledge to program improvement. The results and techniques employed in this study can conceivably be applied to other similarly constructed development programs, but rigid comparability of results without due consideration for differences in social setting would render such comparisons invalid.

Finally, the results of this study of the social systems and system of attitude formation in a development program decision making setting are viewed by this researcher as being far from final. There are many questions remaining to be answered with respect to the implied and stated relationships. The model should be tested and verified and other measures of attitudes should

be sought for explanatory purposes. Yet there are further considerations when using predictive models as Sir George Thomson pointed out in a letter to Albert Einstein's biographer. His thoughts should be considered as research into the complex fabric of social factors in development programs is pursued.

> "Whenever a system is really complicated, as in the brain or in an organized community... indeterminancy comes in... because to make a prediction so many things must be known that the stray consequences of studying them will disturb the status quo, which can never therefore be discovered... The supposed causes only may produce the consequences we expect."[1]

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[1]Ronald W. Clark, Einstein: The Life and Times, (New York: The World Publishing Company, 1971), x.

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APPENDICES

APPENDIX A

Questionnaire

ECONOMIC RESEARCH SERVICE
U.S. DEPARTMENT OF AGRICULTURE

RC&D LEADERSHIP INFORMATION QUESTIONNAIRE
(All Information is Confidential and
Will Be Released Only in Summary Form)

1. Through which of the following roles other than County Steering Committee member are you associated with the Resource Conservation and Development project?

_____ County commissioner
_____ Soil conservation district director
_____ Area steering committee member
_____ Representing any other interested agency or group.

2. How did you first hear of the RC&D program? _____

3. What do you see as the goals of the RC&D program in this project area? _____
_____

(The following questions will be presented to the respondent on separate number cards -- one response per question.)

4. Card #1: Which response best expressed your opinion of the economy in your county? Is it:

_____a. growing rapidly
_____b. growing slowly
_____c. stabilized
_____d. declining slowly
_____e. declining rapidly
_____f. undecided

5. Card #2: Which response best expresses your opinion of the quality of the natural environment (land, water and associated physical characteristics) of your county? Is it:

_____a. improving rapidly
_____b. improving slowly
_____c. stabilized
_____d. deteriorating slowly
_____e. deteriorating rapidly
_____f. undecided

6. Card #3: Which response best expresses your opinion of the social environment (meaning the health, education, welfare, public services, etc.) of your county? Is it:

_____a. improving rapidly
_____b. improving slowly
_____c. stabilized
_____d. deteriorating rapidly
_____e. deteriorating slowly
_____f. undecided

7. Card #4: Which response best expresses your opinion of RC&D effectiveness in achieving goals of the RC&D project for your county? Is it:

_____a. effective
_____b. slightly effective
_____c. not effective
_____d. undecided

8. Under each general category (in capital letters) listed below there is a list of potential problem areas. Indicate with a check (x) those areas needing increased attention in your county.

ENVIRONMENT

___air pollution
___natural beauty
___changing land use
___other _____

WATER

___pollution
___flooding
___drainage
___other _____

FORESTRY

___income
___labor
___management
___timber quality and species
___marketing
___land ownership
___other _____

PLANNING AND DEVELOPMENT

___comprehensive planning
___land use planning
___development controls
___other _____

LAND

___erosion
___lack of soils data
___land development
___other _____

AGRICULTURE

___income
___labor
___management
___farm size and ownership
___land use and treatment
___marketing
___other _____

RECREATION

___income
___labor
___management
___land and water use conflicts
___public access
___underdevelopment
___overdevelopment
___financing

EDUCATION

___elementary and secondary
___college
___adult
___vocational
___other _____

8. continued

HEALTH AND MEDICAL SERVICES

___medical personnel
___medical facilities
___medical programs
___other _____

INDUSTRY

___income
___labor
___management
___lack of development
___other _____

EMPLOYMENT

___low wages
___lack of job training
___seasonal work
___lack of industry and business
___other _____

TRANSPORTATION

___highways and roads
___harbors and channels
___rail facilities
___air facilities
___other _____

HOUSING

___shortage
___dilapidation
___presence of vacation housing
___development controls
___other _____

COMMUNITY FACILITIES AND SERVICES

___water supply and distribution systems
___sewage treatment and disposal systems
___police and fire service
___urban improvements (streets, sidewalks, building renovations)
___business services
___historical and cultural improvements
___other _____

9. If you had the authority, in which order would you choose to attack problems which affect people in the following general areas of concern: number your choices 1 thru 7 in order of importance.

___education ___health and medical services ___industry
___employment ___transportation ___housing ___community facilities and services

10. If you had the authority, in which order would you choose to attack problems which affect natural resources for the following general areas of concern? Again, number your choices 1 thru 7 in order of importance.

___environment ___land ___water ___agriculture ___forestry
___recreation ___planning and development

11. For your county, do you think the RC&D program will make valuable contributions toward aiding the general problems listed below?

	Yes	No	Undecided
environment	___	___	___
land	___	___	___
water	___	___	___
agriculture	___	___	___
forestry	___	___	___
recreation	___	___	___
planning and development	___	___	___
education	___	___	___
health and medical services	___	___	___
industry	___	___	___
employment	___	___	___
transportation	___	___	___
housing	___	___	___
community facilities and services	___	___	___

12. Do you think the RC&D project has helped to improve economic opportunities for people in your county?

___ yes ___ no ___ undecided

(If the answer is "yes") In what ways have economic opportunities improved? _____

13. Does your county steering committee have a formal (written) set of county goals? ___ yes ___ no ___ don't know

14. Does your county steering committee try to interest more local people in submitting proposals? ___ yes ___ no ___ undecided

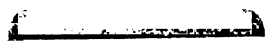
15. Does your county steering committee forward all proposals to the Project Steering Committee? ___ yes ___ no ___ undecided

16. In your opinion, to what degree is the RC&D program known and understood by the people in your county?

___a. very well ___b. somewhat ___c. not very well
___d. undecided

17. List in order of importance up to three groups or organizations which seem to be most influential in guiding northwest Michigan counties toward goals you feel are most important.

1. _____ 2. _____ 3. _____



18. What do you understand to be the primary functions of the following groups, individuals, and agencies as related to the RC&D projects? If "don't know" or "undecided" are appropriate responses, please write in.

a. RC&D Project Steering Committee _____
b. County steering committee _____
c. SCS Project Coordinator _____
d. SCS Area Conservationist _____
e. SCS District Conservationist _____
f. Soil Conservation District _____
g. Extension Service _____
h. Michigan Department of Natural Resources _____
i. Upper Great Lakes Regional Commission _____
j. Forest Service _____
k. Farmers Home Administration _____

19. Identify, by occupation, up to 3 key community leaders in your county. 1. _____ 2. _____ 3. _____

20. Are these leaders involved in the RC&D project? Leader #1: ___ yes ___ no ___ undecided; leader #2: ___ yes ___ no ___ undecided; leader #3: ___ yes ___ no ___ undecided

21. If yes, how are they involved? #1_____ #2_____ #3_____

22. Do you believe that community leaders in general are presently active in the RC&D program? ___ yes ___ no ___ undecided. If "no", would the RC&D program be more effective if they were included? ___ yes ___ no. If "yes", explain how. _____

23. If you had the authority, would you change the RC&D program?

___ yes ___ no ___ undecided

24. If yes, how? _____

25. If you were to encourage new people to move into this area, which three occupational skills do you think would be of most benefit to your county? List by importance. 1. _____
2. _____ 3. _____

26. Please give any other comments on the RC&D project you wish to make. _____

COMMITTEE MEMBER CHARACTERISTICS

We would like to find out some information about you. Would you please answer these questions? All answers will be released only in summary form.

27. Do you belong to any of the following groups of organizations?

27. continued

Type of Organization	Membership Yes	No	If "yes" What	Reg. Part. Yes	No	Ofc. Yes	No
A. Education (e.g., PTA)							
B. Health (e.g., county boards of health)							
C. Industry (e.g., National Association of Manuf.)							
D. Employment (e.g., AF of L, UAW, Teamsters)							
E. Transportation (e.g., Highway or R.R. Comm.)							
F. Housing (e.g., zoning com.)							
G. Community Facilities & Services (e.g., township trustees, cemetery boards, REA Coop committees)							
H. Environment (e.g., Seirra Club, Friends of the Land, Boy Scouts, Girl Scouts)							
I. Land (e.g., National Soil & Water Cons. Dists., SCSA)							
J. Water (e.g., Irrigation & Drainage Dists.)							

27. continued

Type of Organization	Membership Yes	Membership No	If "yes" What	Reg. Part. Yes	Reg. Part. No	Ofc. Yes	Ofc. No
K. Agriculture (e.g., AFBF, Grange, NFO)							
L. Forestry (e.g., Amer. Forestry Assn., Society of Amer. Foresters, National Park Assn.)							
M. Recreation (e.g., Izak Walton, National Wildlife Institute, Fish Game Clubs, Nature Conservancy)							
N. Planning & Development (e.g., Amer. Institute of Planners, Amer. Soc. of Planning Officials)							
O. Civic Groups (e.g., Kiwanis, Lions, VFW, Ruritan, Jaycees, Civitan)							
P. Social Groups (e.g., Elks, Moose, Masons, IOOF)							
Q. Religious (e.g., K of C, church councils-identification of church membership is not expected)							

28. Indicate if you have filled any of the positions listed below and the length of time for the positions.

28. continued

Position	Yes	No	No. of Years
a. County Commissioner	___	___	____
b. Soil Conserv. Dist. Dir.	___	___	____
c. County Steering Comm.	___	___	____
d. Project Steering Comm.	___	___	____

29. Male _____ Female _____

30. What is your age? _____ years

31. Respondent's county of residence. _____

32. What is the highest level of education you have completed?

___ Did not complete high school
___ Completed high school only
___ Completed high school and some technical training
___ Some college, no degree
___ College graduate or post graduate
___ Other special training (specify)

33. How many years have you lived in this state? _____ years, in this county? _____ years.

34. How many years have you lived in any of the 12 other RC&D counties? _____ years.

35. How many miles do you live from the town, village, or city where you do most of your family shopping? (zero miles if you live within the limits of the town where you shop).
_____ miles away.

36. What is your present occupation? _____
Be as specific as possible.

37. If retired, please check: _____ yes _____ no

38. Is your work primarily in the county where you live?

_____ yes _____ no

39. Which of the following categories includes your estimated income in 1970?

_____ up to $5,000
_____ $5,001 to $10,000
_____ $10,001 to $15,000
_____ $15,000 to $20,000
_____ over $20,000

40. Please give any other comments you wish to make. _____

_____

Note: This reproduction of the Questionnaire does not follow the original typing format used by the ERS. It is, however, complete in all other details.

APPENDIX B

List of Variables

	Variable Number	Variable Name	Variable Category
*	1	Co. Comm.	Current Role
*	2	SCD	" "
*	3	Other	" "
	4	None	" "
***	5	Growing Rapid	Economic Perception
***	6	Growing Slow	" "
*	7	Stabilized	" "
**	8	Declining Slow	" "
**	9	Improving Rapid	Natural Environment Perception
*	10	Improving Slow	" "
*	11	Stabilized	" "
***	12	Deteriorating Slow	" "
***	13	Deteriorating Rapid	" "
***	14	Improving Rapid	Social Environment Perception
***	15	Improving Slow	" "
*	16	Stabilized	" "
***	17	Deteriorating Slow	" "
***	18	Deteriorating Rapid	" "
	19	Undecided	" "
*	20	Effective	RC&D Opinion of Effectiveness
*	21	Slightly Effective	" "
	22	Not Effective	" "
	23	Undecided	" "
	24	Air Pollution	Potential Problem Area Identification Environment Problems
**	25	Natural Beauty	" "
**	26	Changing Land Use	" "
	27	Other	" "
**	28	Erosion	Land Problems
	29	Lack of Soils Data	" "
**	30	Land Development	" "
	31	Other	" "
**	32	Pollution	Water Problems
	33	Flooding	" "
	34	Drainage	" "
	35	Other	" "
**	36	Income	Agriculture Problems
	37	Labor	" "
	38	Management	" "
	39	Farm Size & Ownership	" "
	40	Land Use & Treatment	" "
	41	Marketing	" "
	42	Other	" "

	Variable Number	Variable Name	Variable Category
	43	Income	Forestry Problems
	44	Labor	" "
	45	Management	" "
	46	Timber Quality	" "
**	47	Marketing	" "
	48	Land Ownership	" "
	49	Other	" "
	50	Income	Recreation Problems
	51	Land	" "
	52	Management	" "
	53	Land & Water Use Conflict	" "
**	54	Public Access	" "
**	55	Underdevelopment	" "
**	56	Overdevelopment	" "
**	57	Financing	" "
	58	Other	" "
**	59	Comprehensive Plan	Plan & Devel. Problems
	60	Land Use Planning	" "
	61	Development Control	" "
	62	Other	" "
	63	Elementary & Secondary	Education Problems
	64	College	" "
	65	Adult Education	" "
**	66	Vocational	" "
	67	Other	" "
**	68	Medical Personnel	Health & Medical Services Problems
**	69	Medical Facilities	" "
	70	Medical Programs	" "
	71	Other	" "
	72	Income	Industry Problems
	73	Labor	" "
	74	Management	" "
**	75	Lack of Development	" "
	76	Other	" "
	77	Low Wages	Employment Problems
**	78	Lack of Job Training	" "
	79	Seasonal Work	" "
**	80	Lack of Industry & Business	" "
	81	Other	" "
	82	Highways & Roads	Transportation Problems
	83	Harbors & Channels	" "
	84	Rail Facilities	" "
	85	Air Facilities	" "
	86	Other	" "
	87	Shortage	Housing Problems
	88	Dilapidation	" "
	89	Presence of Vacation H.S.	" "
	90	Development Controls	" "
	91	Other	" "
**	92	Water Supply & Dist.	Comm. Facil. & Serv. Problems

	Variable Number	Variable Name	Variable Category
	93	Sewage Treat & Disp.	Comm. Facil. & Serv. Problems, cont.
	94	Police & Fire Serv.	" "
	95	Urban Improvements	" "
	96	Business Services	" "
**	97	Historical & Cultural Imp.	" "
	98	Education	People Ranking Problems
	99	Health & Medical Service	" "
	100	Industry	" "
	101	Employment	" "
	102	Transportation	" "
	103	Housing	" "
	104	Comm. Facil. & Services	" "
	105	Environment	Nat. Res. Ranking Problems
	106	Land	" "
	107	Water	" "
	108	Agriculture	" "
	109	Forestry	" "
	110	Recreation	" "
	111	Planning & Develop.	" "
*	112	Environment - Yes	Valuable Contribution
	113	Environment - Undecided	" "
*	114	Land - Yes	" "
	115	Land - Undecided	" "
*	116	Water - Yes	" "
	117	Water - Undecided	" "
*	118	Agriculture - Yes	" "
	119	Agriculture - Undecided	" "
*	120	Forestry - Yes	" "
	121	Forestry - Undecided	" "
*	122	Recreation - Yes	" "
	123	Recreation - Undecided	" "
*	124	Plan & Devel. - Yes	" "
	125	Plan & Devel. - Undecided	" "
*	126	Education - Yes	" "
	127	Education - Undecided	" "
*	128	Health & Med. Serv. - Yes	" "
	129	Health & Med. Serv. - Undecided	" "
*	130	Industry - Yes	" "
	131	Industry - Undecided	" "
*	132	Employment - Yes	" "
	133	Employment - Undecided	" "
*	134	Transportation - Yes	" "
	135	Transportation - Undecided	" "
*	136	Housing - Yes	" "
	137	Housing - Undecided	" "
*	138	Comm. Fac. & Serv. - Yes	" "
	139	Comm. Fac. & Serv. - Undecided	" "

	Variable Number	Variable Name	Variable Category
*	140	Yes	Improved Economic Opportunity
	141	Undecided	" "
***	142	Yes	Written Formal Co. Goals Available
	143	Undecided	" "
*	144	Yes	Submitting of Proposals Encouraged
	145	Undecided	" "
*	146	Yes	Committee Forward all Proposals to Project Level
	147	Undecided	" "
*	148	Very Well	Community Awareness of RC&D
***	149	Somewhat	" "
***	150	Not Very Much	" "
	151	Undecided	" "
*	152	Yes	Key Local Leader Involvement with RC&D #1 rank
	153	Undecided	" " "
*	154	Yes	" " "
	155	Undecided	" " "
*	156	Yes	" " #3 rank
	157	Undecided	" " "
***	158	Yes	Community Leaders Active
	159	Undecided	" "
***	160	Yes	Would RC&D Improve if Leaders Were Active
*	161	Yes	Propensity to Change
	162	Undecided	" "
	163	Medical	Beneficial Skills Desired #1 rank
	164	Construction	" " "
	165	Machinist	" " "
	166	Electrician	" " "
	167	Don't Need	" " "
	168	Agric. Scientist	" " "
	169	Engineers	" " "
	170	Managers & Owners	" " "
	171	Lawyers	" " "
	172	Mechanics	" " "
	173	Tool & Die	" " "
	174	Ad Men	" " "
	175	Teachers	" " "
	176	Recreation Devel.	" " "
	177	Industry Devel.	" " "
	178	Surveyor	" " "
	179	Skilled Worker Gen.	" " "

	Variable Number	Variable Name	Variable Category
*	140	Yes	Improved Economic Opportunity
	141	Undecided	" "
***	142	Yes	Written Formal Co. Goals Available
	143	Undecided	" "
*	144	Yes	Submitting of Proposals Encouraged
	145	Undecided	" "
*	146	Yes	Committee Forward all Proposals to Project Level
	147	Undecided	" "
*	148	Very Well	Community Awareness of RC&D
***	149	Somewhat	" "
***	150	Not Very Much	" "
	151	Undecided	" "
*	152	Yes	Key Local Leader Involvement with RC&D #1 rank
	153	Undecided	" " "
*	154	Yes	" " "
	155	Undecided	" " "
*	156	Yes	" " #3 rank
	157	Undecided	" " "
***	158	Yes	Community Leaders Active
	159	Undecided	" "
***	160	Yes	Would RC&D Improve if Leaders Were Active
*	161	Yes	Propensity to Change
	162	Undecided	" "
	163	Medical	Beneficial Skills Desired #1 rank
	164	Construction	" " "
	165	Machinist	" " "
	166	Electrician	" " "
	167	Don't Need	" " "
	168	Agric. Scientist	" " "
	169	Engineers	" " "
	170	Managers & Owners	" " "
	171	Lawyers	" " "
	172	Mechanics	" " "
	173	Tool & Die	" " "
	174	Ad Men	" " "
	175	Teachers	" " "
	176	Recreation Devel.	" " "
	177	Industry Devel.	" " "
	178	Surveyor	" " "
	179	Skilled Worker Gen.	" " "

	Variable Number	Variable Name	Variable Category
	180	Manager & Owner	Beneficial Skills Desired, cont. #2 rank
	181	Machinist	" " "
	182	Skilled Worker Gen.	" " "
	183	Farmer	" " "
	184	Teacher	" " "
	185	Tool & Die	" " "
	186	Plumber	" " "
	187	Don't Need	" " "
	188	Refrigeration	" " "
	189	Surveyor	" " "
	190	Recreation Worker	" " "
	191	Lawyer	" " "
	192	Accountant	" " "
	193	Mech. Engineer	" " "
	194	Lumberman	" " "
	195	Medical	" " "
	196	Electrician	" " "
	197	Industry Devel.	" " "
	198	Ad Men	" " "
	199	Construction	" " "
	200	Recreation Devel.	" " "
	201	Public Administrator	" " "
	202	Public Administrator	" #3 rank
	203	Service Worker	" " "
	204	Medical	" " "
	205	Managers & Owner	" " "
	206	Skilled Workers Gen.	" " "
	207	Construction	" " "
	208	Mechanics	" " "
	209	Don't Need	" " "
	210	Foresters	" " "
	211	Teachers - Elementary	" " "
	212	Laborers	" " "
	213	Social Worker	" " "
	214	Land Developer	" " "
	215	Plumber	" " "
	216	Teacher	" " "
	217	Retired	" " "
	218	Machinist	" " "
	219	Co. Commission	Past Related Role & Tenure
*	220	Years CC	" "
	221	SCD	" "
***	222	Years SCD	" "
	223	Co. Steering Comm.	" "
**	224	Years Co. Str. Comm.	" "
	225	Project Steering Comm.	" "
*	226	Years Proj. Str. Comm.	" "

	Variable Number	Variable Name	Variable Category
	227	Male	Sex
	228	Female	"
	229	20-29	Age
***	230	30-39	"
***	231	40-49	"
***	232	50-59	"
***	233	60 plus	"
***	234	Did not complete High School	Education
***	235	High School Only	"
*	236	High School & Technical Train	"
***	237	Some College	"
***	238	College Graduate	"
*	239	Other Special Training	"
	240	Less than 20	Years Residence in Michigan
*	241	20-29	" " "
	242	30-39	" " "
*	243	40-49	" " "
*	244	50-59	" " "
*	245	60 plus	" " "
*	246	Less than 20	Years Residence in County
*	247	20-29	" " "
*	248	30-39	" " "
*	249	40-49	" " "
*	250	50-59	" " "
	251	60 plus	" " "
*	252	Less than 20	Years Residence in RC&D
*	253	20-29	" " "
	254	40-49	" " "
*	255	50-59	" " "
***	256	10 plus miles	Distance to Economic Place
*	257	0 miles	" " "
*	258	1-5 miles	" " "
	259	6-9 miles	" " "
*	260	Public Administrator	Occupation
*	261	Extension Agent	" "
*	262	Teacher	" "
*	263	Construction	" "
*	264	Professor Bio. Sci.	" "
***	265	Farmer	" "
***	266	Manager & Owner	" "
*	267	Librarian	" "
*	268	Machinist	" "
*	269	Forester	" "
*	270	Postmaster	" "
*	271	Civil Engineer	" "
*	272	Store Keeper	" "
*	273	Plumber	" "

	Variable Number	Variable Name	Variable Category
*	274	Real Estate Agents	Occupation, cont.
*	275	Painter	"
*	276	Auctioneer	"
*	277	Salesmen	"
*	278	Labor Relations Worker	"
*	279	Retired	"
*	280	Yes	Work in County of Residence
***	281	Less than 5,000	Income
***	282	5,000-10,000	"
***	283	10,001-15,000	"
***	284	15,001-20,000	"
***	285	20,000 plus	"
	286	Not reported	"
*	287	Environment	Initial Contact with RC&D
*	288	Land	" " "
***	289	Agriculture	" " "
*	290	Planning & Development	" " "
*	291	Industry	" " "
*	292	Transportation	" " "
***	293	Comm. Facil. & Serv.	" " "
*	294	Environment	Most Influential Organization #1 rank
*	295	Land	" " "
*	296	Water	" " "
*	297	Agriculture	" " "
*	298	Forestry	" " "
*	299	Recreation	" " "
*	300	Planning & Development	" " "
*	301	Education	" " "
*	302	Industry	" " "
*	303	Transportation	" " "
*	304	Comm. Facil. & Serv.	" " "
*	305	Land	" " #2 rank
*	306	Agriculture	" " "
*	307	Forestry	" " "
*	308	Recreation	" " "
*	309	Planning & Development	" " "
*	310	Education	" " "
*	311	Transportation	" " "
*	312	Housing	" " "
*	313	Comm. Facil. & Serv.	" " "
*	314	Land	" " #3 rank
*	315	Water	" " "
*	316	Agriculture	" " "
*	317	Forestry	" " "
*	318	Planning & Development	" " "
*	319	Health & Medical Service	" " "
*	320	Industry	" " "
*	321	Transportation	" " "

Variable Number		Variable Name	Variable Category
*	322	Housing	Most Influential Organization cont. #3 rank
*	323	Comm. Facil. & Service	" " "
*	324	Education - Yes	Respondent's Membership in
*	325	Health & Med. Serv. - Yes	" " "
*	326	Industry - Yes	" " "
*	327	Employment - Yes	" " "
*	328	Transportation - Yes	" " "
*	329	Transportation - No	" " "
***	330	Housing - Yes	" " "
***	331	Comm. Facil. & Serv. - Yes	" " "
*	332	Environment - Yes	" " "
***	333	Land - Yes	" " "
*	334	Water - Yes	" " "
***	335	Agriculture - Yes	" " "
*	336	Forestry - Yes	" " "
***	337	Recreation - Yes	" " "
*	338	Recreation - No	" " "
***	339	Plann. & Devel. - Yes	" " "
*	340	Civic Group - Yes	" " "
*	341	Social Group - Yes	" " "
*	342	Religious Group - Yes	" " "
*	343	Co. Steering Comm.	Leader Involved in What Capacity #1 rank
*	344	Advisor	" " "
*	345	Sponsor	" " "
*	346	Indirectly	" " "
*	347	Co. Steering Comm.	" " #2 rank
*	348	Advisor	" " "
*	349	Sponsor	" " "
*	350	Indirectly	" " "
*	351	Co. Steering Comm.	" " #3 rank
*	352	Advisor	" " "
*	353	Indirectly	" " "
*	354	Mention	Goal Perception - Identification
*	355	Environment	" "
*	356	Land	" "
*	357	Water	" "
*	358	Agriculture	" "
*	359	Forestry	" "
*	360	Recreation	" "
*	361	Planning & Development	" "
*	362	Education	" "
*	363	Industry	" "

Variable Number	Variable Name	Variable Category
* 364	Employment	Goal Perception - Identification, cont.
* 365	Transportation	" "
* 366	Housing	" "
* 367	Comm. Facil. & Serv.	" "
368	General Conservation	" "

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* - identifies variables used in canonical analysis

** - identifies those variables isolated by factor analysis

*** - identifies those variables used in both canonical analysis and isolated by factor analysis

APPENDIX C

Cross Tabulations of All Variables Used
in Subsequent Analysis

Variable Names	Effective	Slightly Effective	Variable Names	Effective	Slightly Effective
ROLE - Co. Comm.	9	3	LOCAL LEADER INVD.		
" - SCD	15	2	#1	21	12
" - Other	20	8	#2	16	9
ECONOMIC PERCEPT.			#3	15	8
Growing Rapid	11	8	General Leader Act.	15	8
Growing Slowly	20	11	Improve if Active	17	7
Stabilized	7	1	Propensity to Ch.	13	12
NAT. ENVIR. PERCEPT.			TENURE IN RELATED		
Improving Slowly	17	6	ROLE		
Stabilized	7	7	Years Co. Comm.	13	4
Deteriorating Slow	10	6	Years SCD	15	4
Deteriorating Rapid	3	1	AGE 30-39	4	2
SOCIAL ENVIR. PER.			40-49	9	5
Improving Rapid	6	4	50-59	14	6
Improving Slowly	24	13	60 plus	11	7
Stabilized	7	2	EDUCATION		
Deteriorating Slow	1	0	Not compl. H.S.	6	1
Deteriorating Rapid	1	0	H.S. Only	12	7
VALUABLE CONTRIB.			H.S. & Tech. Tr.	2	0
Environment	34	16	Some College	13	7
Land	37	18	College Grad.	6	4
Water	36	18	Other Spec. Tr.	10	6
Agriculture	29	12	YRS. RES. IN MICH.		
Forestry	32	16	20-29	3	4
Recreation	35	17	30-39	7	4
Plan. & Devel.	35	17	40-49	8	4
Education	20	5	50-59	13	4
Health & Medical	15	6	60 plus	7	4
Industry	22	13	YRS. RES. IN CO.		
Employment	29	12	Less than 20	10	5
Transportation	22	10	20-29	7	7
Housing	18	12	30-39	3	1
Comm. Fac. & Serv.	31	16	40-49	9	1
Improved Econ. Opp.	29	12	50-59	9	3
Formal Co. Goals	24	15	YRS. RES. IN RC&D		
Proposals Encourage	33	18	Less than 20	35	17
Forward Proposals	28	15	20-29	2	2
COMMUNITY AWARE			50-59	0	1
Very Well	1	1	DIST. TO ECON. PL.		
Somewhat	10	4	0 miles	12	7
Not Very Well	27	15	1-5 miles	11	7
			10 plus	12	3

Variable Name	Effective	Slightly Effective	Variable Names	Effective	Slightly Effective
OCCUPATION					
Public Adm.	2	0	Comm. Fac. & Serv.	9	9
Extension Agent	0	2	MOST INFL. ORGAN.		
Teacher	3	0	#2		
Construction	2	1	Land	2	2
Professor	1	0	Agriculture	9	3
Farmer	17	1	Forestry	0	1
Mgr. & Owner	9	7	Recreation	0	1
Librarian	1	0	Plan. & Devel.	4	2
Machinist	1	0	Education	1	0
Forester	0	2	Transportation	1	2
Postmaster	1	0	Housing	2	0
Civil Engineer	0	0	Comm. Fac. & Serv.	17	8
Store Keeper	0	1	MOST INFL. ORGAN.		
Plumber	1	0	#3		
Real Estate	1	3	Land	1	1
Painter	0	1	Water	1	0
Auctioneer	0	0	Agriculture	7	3
Salesman	0	0	Forestry	1	0
Labor Relations	0	1	Plan. & Devel.	2	2
Retired	5	6	Health & Medical	1	0
Work in Co. of Res.	36	18	Industry	0	1
INCOME			Transportation	0	0
Less than $5,000	5	0	Housing	1	0
$5,001-10,000	16	9	Comm. Fac. & Serv.	1	17
$10,001-15,000	9	4	MEMBERSHIP		
$15,001-20,000	5	4	Education	1	10
$20,000 plus	3	3	Health & Medical	1	7
INITIAL CONTACT			Industry	0	1
Environment	0	1	Employment	0	2
Land	9	1	Transportation	0	6
Agriculture	17	13	Housing	0	6
Plan. & Devel.	4	0	Comm. Fac. & Serv.	1	10
Industry	0	1	Environment	1	8
Transportation	0	0	Land	1	15
Comm. Fac. & Serv.	8	3	Water	0	4
MOST INFL. ORGAN.			Agriculture	0	17
#1			Forestry	0	1
Environment	1	0	Recreation	1	11
Land	6	1	Plan. & Devel.	0	11
Water	1	0	Civic Group	1	12
Agriculture	10	3	Social Group	0	8
Forestry	1	0	Religious Group	0	10
Recreation	0	1	TYPE LEADER		
Plan & Devel.	8	3	Involv. #1		
Education	1	0	Co. Steering Comm.	0	11
Industry	1	1	Advisor	0	4
Transportation	0	1	Sponsor	0	1
			Indirectly	5	5

Variable Name	Effective	Slightly Effective	Variable Name	Effective	Slightly Effective
TYPE LEADER INVOLV. #2					
Co. Steering Comm.	8	3			
Advisor	1	2			
Sponsor	2	0			
Indirectly	5	4			
TYPE LEADER INVOLV. #3					
Co. Steering Comm.	8	3			
Advisor	4	1			
Indirectly	4	4			
GOAL PERCEPTIONS					
Environment	7	3			
Land	6	3			
Water	10	7			
Agriculture	1	2			
Forestry	2	2			
Recreation	8	8			
Plan & Devel.	24	11			
Education	1	0			
Industry	2	0			
Employment	0	2			
Transportation	3	1			
Housing	0	1			
Comm. Fac. & Serv.	3	6			

APPENDIX D

Correlation Matrix of Positive Opinions of Program Effectiveness and Predictor Variables

Variables	20	21	Variables	20	21
1	.099	.069	244	.099	-.125
2	.338	-.215	245	-.003	.031
3	.058	-.107	246	.052	.020
5	-.023	.148	247	-.177	.143
6	-.094	-.007	248	-.115	.121
7	.128	-.159	249	.1419	-.211
10	.203	-.062	250	.1870	-.028
11	-.208	.121	252	.114	-.019
12	-.018	.051	253	-.169	.006
13	-.025	-.075	254	.155	-.105
14	.003	.081	255	-.129	.191
15	.009	.049	256	.196	-.075
16	.037	-.111	257	-.151	-.032
17	-.087	-.129	258	-.023	.079
18	.109	-.074	260	.0523	-.129
142	.009	.171	261	-.227	.181
144	-.003	.091	262	.192	-.129
146	-.045	.019	263	.052	.026
148	-.014	.084	264	.109	-.074
149	.1702	.009	265	.345	-.329
150	-.183	.020	266	-.048	.143
152	-.099	.021	267	.109	-.074
154	-.045	.024	268	.109	-.174
156	.022	.032	269	-.227	.181
158	.022	.032	270	.109	-.074
160	.049	-.135	271	-.129	-.074
161	-.302	.159	272	-.184	.084
220	.155	-.075	273	.109	-.074
222	.199	-.172	274	-.142	.256
226	.115	-.114	275	-.129	.191
230	-.029	-.022	276	-.129	-.074
231	-.014	.020	277	-.129	-.074
232	.027	-.062	278	-.129	.191
233	.010	.100	279	-.148	.193
234	.208	.099	280	.025	-.037
235	.038	.079	281	.114	-.204
236	.155	-.105	282	.079	.096
237	-.094	-.032	283	-.082	-.089
238	-.075	.031	284	-.074	.081
239	-.084	.011	285	-.025	.149
241	-.118	.175	287	-.129	.191
242	-.003	.031	288	.142	-.210
243	-.045	-.033	289	-.139	.186

Variables	20	21	Variables	20	21
290	.223	-.150	337	.045	-.019
291	-.129	.191	338	-.045	.019
292	-.129	.074	339	.156	-.108
293	.029	.069	340	-.027	.041
294	.109	-.074	341	-.144	.262
295	.208	-.099	342	.016	-.072
296	.109	-.074	343	-.087	-.026
297	.089	-.108	344	.019	-.099
298	.109	-.074	345	-.087	.026
299	-.264	-.015	346	-.034	.199
300	.029	-.069	347	.029	-.069
301	.1092	-.074	348	-.227	.037
302	-.087	.026	349	.155	-.105
303	-.129	.191	350	.010	.141
304	-.114	.239	351	.064	-.049
305	-.078	.015	352	.075	-.075
306	.099	-.069	353	-.074	.141
307	-.129	.191	354	-.085	.349
308	-.184	.094	355	.032	.117
309	-.152	-.091	356	.003	-.005
310	-.014	-.105	357	-.046	.211
311	-.087	.181	358	-.087	.181
312	.155	-.105	359	.027	.062
313	.137	.032	360	-.111	.231
314	-.014	.084	361	.127	-.092
315	.109	-.074	362	.109	-.074
316	.037	-.028	363	.155	-.105
317	.109	-.074	364	-.174	.258
318	-.126	-.137	365	.101	-.015
319	.109	-.074	366	-.129	.191
320	-.129	.191	367	-.208	.230
321	-.129	-.074			
322	.109	-.074			
323	.042	.042			
324	-.084	.011			
325	-.112	.041			
326	-.142	.120			
327	-.126	.149			
328	.208	-.204			
329	-.208	.204			
330	-.037	.055			
331	-.207	.134			
332	.029	.165			
333	.053	-.014			
334	.223	-.150			
335	.137	-.224			
336	-.187	.196			