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A STUDY OF SELECTED FACTORS ASSOCIATED WITH ENVIRONMENTAL
ATTITUDES OF BIG STONE LAKE AREA RESIDENTS

BY

BRADFORD GEORGE PERRY

A Thesis Submitted
in Partial Fulfillment of the Requirements for the
Degree of Doctor of Philosophy, Major in
Sociology, South Dakota
State University

1972

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A STUDY OF SELECTED FACTORS ASSOCIATED WITH ENVIRONMENTAL
ATTITUDES OF BIG STONE LAKE AREA RESIDENTS

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A STUDY OF SELECTED FACTORS ASSOCIATED WITH ENVIRONMENTAL
ATTITUDES OF BIG STONE LAKE AREA RESIDENTS

Abstract

BRADFORD GEORGE PERRY

Under the supervision of Dr. Robert M. Dimit

A study of Big Stone Lake area residents was accomplished to aid in determining the following: (1) The existing attitudinal orientations of area residents relative to an incoming electrical generating facility (the Big Stone Power Plant); (2) The degree of association between selected variables and respondents' environmental attitudes; (3) The capability of the areas existing institutions to accommodate the local population, and possible effects of plant construction and operation; (4) The potential reference groups utilized for behavioral orientation.

The unit of analysis consisted of Big Stone Lake area residents within a three county universe of discourse. Primary emphasis in sampling was placed upon individuals residing in Big Stone City, South Dakota; (Roberts County) Milbank, South Dakota; (Grant County) and Ortonville, Minnesota (Lac Qui Parle County), as these specific areas were closest to the site of proposed plant construction. A stratified-random sampling method was used.

The interview schedule included personal, social, and economic characteristics of individuals in the sampling frame. Knowledge and attitude questions relative to respondent perception of the incoming power plant were also included. Through the use of a Likert-type summated rating scale, the degree of attitudinal favorability toward a

thirty-five point response set was calculated. Prior to final administration, the interview schedule was pre-tested in Clear Lake, South Dakota.

Utilizing a reference group theoretical orientation, the following were considered as independent variables of the study: level of knowledge; organizational participation; length of residence; education; age; sex; community identification; family size; and level of living.

The association between a set of selected independent variables and area respondents' environmental attitudes was hypothesized. Those hypothesized relationships were analyzed through utilization of a step-wise least squares multivariate linear equation.

The major findings and conclusions were:

1. The existing attitudinal orientations of respondents toward the incoming Big Stone Power Plant were generally favorable. Most respondents appeared to view the incoming industry as a decided economic advantage to the immediate area. Few respondents indicated unfavorable perceptions of the facility.

2. Of the ten independent variables hypothesized in set relationship to environmental attitude, three achieved significance at the chosen level of significance. They were: level of knowledge; organizational participation; and length of residence.

3. The institutions in the area of study appear adequate to accommodate the projected influx of both the construction work force and the permanent staff of the Big Stone power plant. Expansion of community institutions does not appear necessary at this time.

4. It was possible to identify three potential points of reference for behavioral orientation. Through statistical analysis, it appears that level of knowledge, rate of organizational participation, and length of residence may serve as possible sources of attitudinal orientation.

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

Introduction

Rural areas in the United States have experienced significant population decline during the past decades. According to national census figures, in 1950 the rural population of the United States represented 36 percent of the total population. By 1960 this figure dropped to 30 percent, and in 1970 it declined to 27 percent.¹ In South Dakota in 1950, 66.7 percent of the population was rural. In 1960, 60.9 percent of the population was rural, and in 1970 only 55.5 percent was rural.²

Individuals interested in rural development have long acclaimed the critical need for industrialization in rural areas to prevent massive out-migration to our already overcrowded cities. If rural areas are to maintain their identity in this technological age, certainly some adjustments and concessions must be made.

Industrial development is often regarded as the ultimate stabilizing force for the rural community, and rural planners have been long involved in the recruiting of industry.

Industrial development in rural areas has had both positive and negative effects, usually resulting in social change. As the result of

¹U. S. Census Final Reports, 1950, 1960. U. S. Census General Population Characteristics, 1970, PC (1)-P43.

²Riley, M. P., and R. T. Wagner, South Dakota Population and Net Migration, Agricultural Experiment Station, South Dakota State University, February, 1971, p. 5.

innovation, many rural institutions have undergone considerable alteration, and currently emphasis is centered around the preservation of the "Quality of Rural Life".³

Because research is relatively sparse in this area, it is hoped that this dissertation will provide a contribution to the study and analysis of individual attitudes toward ecological phenomena in rural areas.

Industrial development in non-metropolitan areas may have varied and often serious consequences for the affected communities. A summary of factors regarding the selection of plant sites and possible consequences of such selection will follow. This summary is being presented to familiarize the reader with the managerial aspect of site selection.

Management decisions regarding location of future plant sites are usually effected at the top echelons of industrial organizations. The initial decision to locate an industry in any area is, for the most part, determined by a firm's industrial planning and development division. Plant location is based upon many factors which shall be briefly discussed.

Most management personnel involved in any decision to locate, or relocate, a plant site tend to closely follow what is known as the law of comparative advantage. Originally formulated by the Swedish

³Classen, Leo H., "Methods of Selecting Industries for Depressed Areas." Organization for Economic Co-operation and Development (DECO), Paris, 1967, p. 7.

economist Bertril Ohlin,⁴ this law, with respect to plant location, may be briefly summarized as follows. Most industries tend to locate in areas offering them the greatest comparative advantages, that is, they tend to locate in areas most beneficial to the nature and operation of their particular business. Conversely, industries tend not to locate in areas unsuitable to the operation of their firm. In considering the cost of a plant site, planning organizations must take into account the cost of the land upon which the structure will be built. In urban areas the cost of land is often prohibitive, therefore, corporate planning bodies are now turning to rural areas. Because of the extensive construction of interstate highway systems, many remote areas are now readily accessible and are prime targets for large corporations.

Another major factor influencing management decisions regarding plant locations is the general nature of the value added to their product. That is, is the product's value comprised primarily of labor or of Investment Capital? Products designated as labor intensive, are those products, the price of which, is low in capital and high in labor cost. An example then of a labor intensive product would be an automobile, the total cost of which is approximately 75 percent labor and 25 percent capital. Production of electricity would be considered a capital intensive product. Most of the cost of electricity is

⁴Wexler, Immanuel, Fundamentals of International Economics. New York: Random House, 1968, pp. 70-71.

⁵Wexler, Immanuel, Fundamentals of International Economics. New York: Random House, 1968, pp. 80-83.

produced by the total investment required of a producer in his plant facility. In most cases a very small work force can operate an electrical generating plant. Whether a product is labor intensive or capital intensive will have much to do with a decision regarding plant location. Companies must also consider the nature of the labor force in the area in which they plan to locate. That is, to determine the availability of skills required for their operations.

According to Leo H. Classen, chief economist for the Organization for Economic Co-operation and Development (OECD), industries tend to locate in areas having what is known as a favorable demand attraction coefficient.⁶ The demand attraction coefficient is calculated by first determining what proportion of the total economic gross national product is produced by a particular concern. When this percentage has been determined, it is necessary to ascertain what proportion of the gross national product is produced in a particular area. Through the use of a mathematical formula, which, for the sake of parsimony will not be stated here, it is possible to calculate what is known as the demand attraction coefficient. The demand attraction coefficient is an indicant of current demand existing for a particular industry, in a particular area. According to Classen, the higher the coefficient, the greater consideration given that area.⁷

⁶Classen, Leo H., "Methods of Selecting Industries for Depressed Areas." Organization for Economic Co-operation and Development (OECD), Paris, 1967, pp. 4-5.

⁷Classen, Leo H., "Methods of Selecting Industries for Depressed Areas." Organization for Economic Co-operation and Development (OECD), Paris, 1967, pp. 8-9.

When management has reached a decision regarding a rural community in which they plan to locate, they will embark upon an exhaustive public relations plan designed to pave the way for future operations. In considering a particular community, industrial and public relations personnel will approach leaders and attempt to gain their approval. In most rural communities this is easily done as for the most part the incoming business will be of at least economic benefit.

The rates of out-migration in rural communities are a matter of concern to community leaders. Most rural communities view industry as a means of reducing out migration. Many rural communities are experiencing depressed economic conditions and severe unemployment. Industry is regarded in many cases as a "cure-all" for the communities economic problems. In most cases, industrial development is widely accepted in rural communities and often coveted by leaders.

Let us turn to the consequences of industrialization for rural communities. Consideration shall be given both the favorable and unfavorable consequences of industrial development.

By virtue of increased capital investment in a community the tax base may be favorably altered. Many economists feel that rural communities are taxed rather highly due to the fact that they must support facilities similar to larger towns and on a lesser amount of taxable property. In the event of industrial location, tax rates could conceivably be reduced, as industry would be paying a disproportionately high amount of the communities taxes and therefore helping to support many of it's facilities. This is one point considered most favorable

by the leaders of the community and often a strong selling point for management.

The entire economic picture of a rural area may be changed. Industrialization may create jobs and therefore decrease unemployment. In creating additional employment out-migration might be significantly reduced, because youths now no longer need leave their homes to find jobs. Industrialization may also increase in-migration, as the area may become a center of future employment opportunity. If the industry is exceptionally large a number of service businesses could possibly develop in the community to accommodate the influx of personnel.

Should, for instance, an electronics producing firm locate in a particular town, the needs of its personnel may be such that more gas stations, beauty salons, and other smaller, service type, industries may develop to meet their needs. Of course, businesses already existing in this community might prosper because of the increased input of money into the areas economy. Because of this the community may experience an overall increase in individual income among many other factors.⁸

Industrialization may bring with it many benefits other than economic. To adequately meet the needs of an increased labor force, certain conveniences such as shopping centers, art galleries, night clubs, and other entertainment facilities may develop. The community may also experience a modification of recreational patterns because of the

⁸Grossack, Martin, Understanding Consumer Behavior, Christopher Publishing House, Boston, 1969, pp. 4

additional convenience facilities. The community may also find it necessary to expand outdoor recreational facilities in the area to again meet the needs of an increase in population.

We must now consider some of the pressures exerted on a community because of industrialization and a possible accompanying increase in population. Community leaders must totally assess the adequacy of their community in its' ability to meet the needs of its' present population, and future capability to meet the needs of a considerably larger population. Some questions by community leaders might be: Do we have enough schools? Are our children getting a good education and will our school facilities be able to absorb more students?

Of particular importance to rural communities is health care. Many rural communities do not have an adequate supply of physicians; and do not have adequate hospital facilities for present residents. It would be wise for community leaders to consider and evaluate the possibility of increased hospital construction and to determine if this, in fact, will be needed. Another factor to be considered is police protection. Here again community leaders must ask--"is our police force at present doing an adequate job and will it in the future be able to provide sufficient protection for a larger number of people?" In some instances, industrialization might require the employment of additional police officers.

Many rural communities presently do not have sufficient sewage treatment facilities. This is a matter of prime importance, as many industrial concerns discharge large amounts of waste into sewage

systems. With emphasis today upon the quality of environment and ecological matters, many rural communities are becoming conscious of some of the disadvantages of industrialization.

Many local governments in rural areas are especially agrarian oriented and to a large degree sensitive to the farmer. Industrial development may result in an alteration of local government power structure through introduction of aggressive management personnel into the town's governmental structure. Industrial executives may initiate reform of the governmental policy and procedure.⁹

Industry often brings with it many industrial problems. Among them are crime and delinquency. With an increase in community population usually one will find an increase in the frequency of juvenile delinquency and crime. Many rural police departments are not equipped to handle such an increase in criminal action, nor are they equipped to expand to the extent necessary to handle these particular problems. When a rural area does industrialize it also acquires industrial city-type problems.¹⁰

In planning for industry many communities must, in many instances, enlarge their service facilities, as was previously mentioned. The major danger in expansion lies in the inability of many community officials to estimate the degree to which they must expand their town.

⁹Joseph, Seeber, Bach, Economic Analysis and Policy, Prentice Hall, New Jersey, 1969, pp. 149-154.

¹⁰Reckless, Walter, The Crime Problem, Appleton Century Crofts, New York, 1967, pp. 246-248.

Many fail to obtain professional assistance from such individuals as planners and economists in their reconstruction for the future. There have been many cases where a small rural town has over expanded, only to be faced with economic depression when the industry necessitating such expansion goes out of existence or leaves. Many rural communities have been left with disproportionately large hospitals, shopping centers, and other service facilities when such has occurred.

One such case in point is that of Pike County, Ohio, where, in 1952 the atomic energy commission announced that it would build a gaseous diffusion facility. This large installation would cost the federal government well in excess of 1.2 billion dollars and would be located in the Pike County area on a plot of 3,700 acres. Additional projects, such as the building of roads, homes, commercial enterprises, electrical units, airports, and other facilities associated with the establishment of the plant, would cost still another 1 billion dollars. Additional labor would be needed and many people were expected to come into the area to help during the construction phase. So large was this new installation that putting it on the state's tax exempt list doubled the total value of all public and tax exempt property in Ohio. Largest of all atomic plants, the Pike County project swallowed an entire village, 34 farms, 7 partial farms, 2 cemeteries, and a church. We can now see the influence which this particular industry had in Pike County, Ohio. It caused the community to become an area of very rapid change. The values then inherent in the slow, primary, agrarian, way of life which had existed for centuries, were undergoing considerable

change. The complexities of industrialization were to bring with it both satisfaction and frustration. The valley itself had to undergo a transition almost overnight, which many other parts of America had taken decades to achieve. New ways of life were being presented. The plant offered an alternative to problems of the past such as out-migration, and unemployment. In the space of two years the total school enrollment in the area doubled to 8,000 people. Classes were held in the church and in various other public buildings. Then also social conflicts arose between the old time residents of the town and newcomers. There were problems such as crime, juvenile delinquency, and a lack of community facilities to adequately service the plants tremendous influx of personnel.

We might then conclude that human relations problems were caused by the many and rapid changes taking place in this area. The building of this particular plant, a technological change, caused many resulting social changes in schools, churches, and community services.¹¹

Since considerable community expansion was necessitated by construction of the facility, one might well engage in speculation, regarding the virtually unlimited consequences to the affected area in the event such a plant were to cease operations.

It is then with this brief background in mind that the overall purpose of this study will be approached.

¹¹Rogers, Everett, Social Change in Rural Society, Appleton Century Crofts, New York, 1961, pp. 12-13.

Purpose

This research is designed to secure basic data relative to existing conditions and to provide an informational and statistical basis for follow-up research to be conducted in the future.

Problem Statement

In consideration of the previously mentioned background and purpose of the study the following problem statement is posited.

What impact will construction of the Big Stone Power Plant have on the socio-economic profile of the adjacent area?

Objectives of the Study

Using a reference group theoretical orientation, the following are designated objectives of the study:

1. To determine the relative degree of association between selected independent variables and respondents' environmental attitudes.
2. To assess respondents attitudes and perceptions of the following:
 - a. Plant construction and operation.
 - b. Existing institutional capabilities:
 1. religious
 2. governmental
 3. educational
 4. economic
 5. political
 - c. Present ecological conditions.
 - d. Economic status of the area at present.
3. To provide socio-demographic information regarding the present and historical status of the affected area.

4. To describe the area's existing institutions and possible effects of the plants construction and operation.
5. To identify potential reference groups for behavioral orientation.
6. To interrelate the research findings and analysis with a reference group theoretical orientation in order to generalize as to existing implicit conditions and indicate possible areas of future research.

CHAPTER II

HISTORICAL BACKGROUND

Introduction

Within the United States during the past several years, two phenomena have been occurring with increasing frequency. One, the "Black Out" occurs when communities because of excessive consumption of electricity lost total electrical power. The other, the "Brown Out" occurs when the actual supply of electricity is exceeded by user demand, resulting in insufficient power.

Because of such phenomena power companies throughout the nation have embarked upon programs of accelerated construction of electrical generating facilities, to meet ever increasing user demand. Current studies indicate that by the year 2000 AD, electrical demand in the United States will increase 7 fold.

Although rural areas have remained largely unaffected by such demand increase, it is anticipated that in a relatively short period of time (5-10 years) electricity in rural areas will be in short supply.¹ In light of this, power companies are looking at rural areas in anticipation of their needs.

¹Federal Power Commission, World Power Data, 1966: Capacity of Electrical Generative Plants and Production of Electrical Energy. Washington, D. C.: United States Government Printing Office, 1966.

Background

During the fall of 1969, a power consortium comprised of Montana-Dakota Utilities; Northwestern Public Service Co.; and Otter Tail Power Co., purchased a 2,800 acre tract of land near Big Stone City, South Dakota. The acreage was purchased to be utilized as the building site of a jointly financed electrical generating facility of an estimated 400 megawatts. The following is a synopsis of plant construction and operation:

1. The Big Stone Plant will be jointly owned by the three private utility companies.
2. The plant will have a 400 megawatt (MW) capacity and will be fueled by North Dakota lignite, a soft coal with low sulphur content (1/2 to 3/4 percent).
3. Plant design began in October, 1969. Construction is scheduled to begin early in 1972, to end by May, 1975, and will employ a peak work force of 500 during the Construction Phase. After completion, the plant is expected to employ a permanent operational staff of fifty, mainly technical and professional personnel.

The power companies plan to cool their electrical generators with water pumped from nearby Big Stone Lake and stored in an approximately 70 acre man-made lake to be constructed by the power companies. After the water has been used to cool the generators it will be returned to the atmosphere in vapor form by means of cooling towers. According to the consulting engineers, no contaminated water will be returned to the lake although the vapor emitted from the cooling towers will contain fly ash--a residual product of incomplete combustion--and certain

other mineral residues. Electricity produced by this facility will be utilized predominantly in the metropolitan areas east of the State of Minnesota.²

Much concern has recently been in evidence as the Minnesota Pollution Control Authority initially disallowed construction of the plant in that state. Construction then, is planned for South Dakota.

As noted, the Big Stone Plant will be jointly owned by three private utility companies; will have a 400 MW capacity (twice that of all plants in Tunisia, Burma, or Bolivia)³ and will employ an estimated peak work force of 500 persons during the construction phase.

The Bechtel Corporation, a San Francisco-based engineering and construction firm of 10,000 employees, has contracted to design and build the plant. Employment during the construction phase is expected to reach its peak in the summer of 1973. About eight percent of the construction force (about 40 families), will probably consist of full-time, year-around technical and administrative personnel from the Bechtel Corporation itself, who will remain in the community throughout the three-year period of plant construction. The remaining 92 percent will probably consist of skilled, semiskilled, and unskilled labor recruited from the tri-state region.

²Bechtel Corporation, Big Stone Lake Plant, South Dakota: Engineer's Report Prepared for Governmental Regulatory Agencies of South Dakota. San Francisco: Bechtel Corporation, April, 1970, 5-1.

³Federal Power Commission, World Power Data, 1966: Capacity of Electric Generating Plants and Production of Electric Energy. Washington, D. C.: USGPO, 1966.

After the construction phase has been completed (May 1, 1975), a permanent operational staff of 50 technical and professional personnel will be employed at the plant, which will consume an estimated five 100-car unit trainloads of North Dakota lignite per week and an estimated 150,000 gallons of water per minute.⁴ Most of this water will be used to cool the steam turbines. The turbines will utilize steam at 2,400 psi and 1,000°F. At the present time, designers plan to use a cooling pond which will recycle much of the same water, although they expect to lose about 480 gallons (60 ft³ per second) per minute to evaporation. To compensate for this loss, company officials currently plan to draw 7,000 acre-feet per year from the surrounding watershed: either from the 85,000 acre-feet passing through Big Stone Lake as shown at "1" in Illustration One; or (a less-desirable alternative) from a reservoir subsequently constructed for this purpose on the Whetstone River in the vicinity of "2" in Illustration One.⁵

The North Dakota lignite will probably be mined by open pit method from the Gascoyne Mine in that state; and the five 100-car unit trainloads will probably consist of new 100-ton unitrain capacity cars. A 250,000-ton emergency coal supply will be maintained at the plant site.⁶

⁴Pamphlet #1, op. cit.

⁵Correspondence with H. R. Cowles, Project Manager, Otter Tail Power Company, Fergus Falls, Minnesota, August, 1970.

⁶Bechtel Corporation, Big Stone Lake Plant, South Dakota: Engineers' Report Prepared for Governmental Regulatory Agencies of South Dakota. San Francisco: Bechtel Corporation, April, 1970. 5-1.

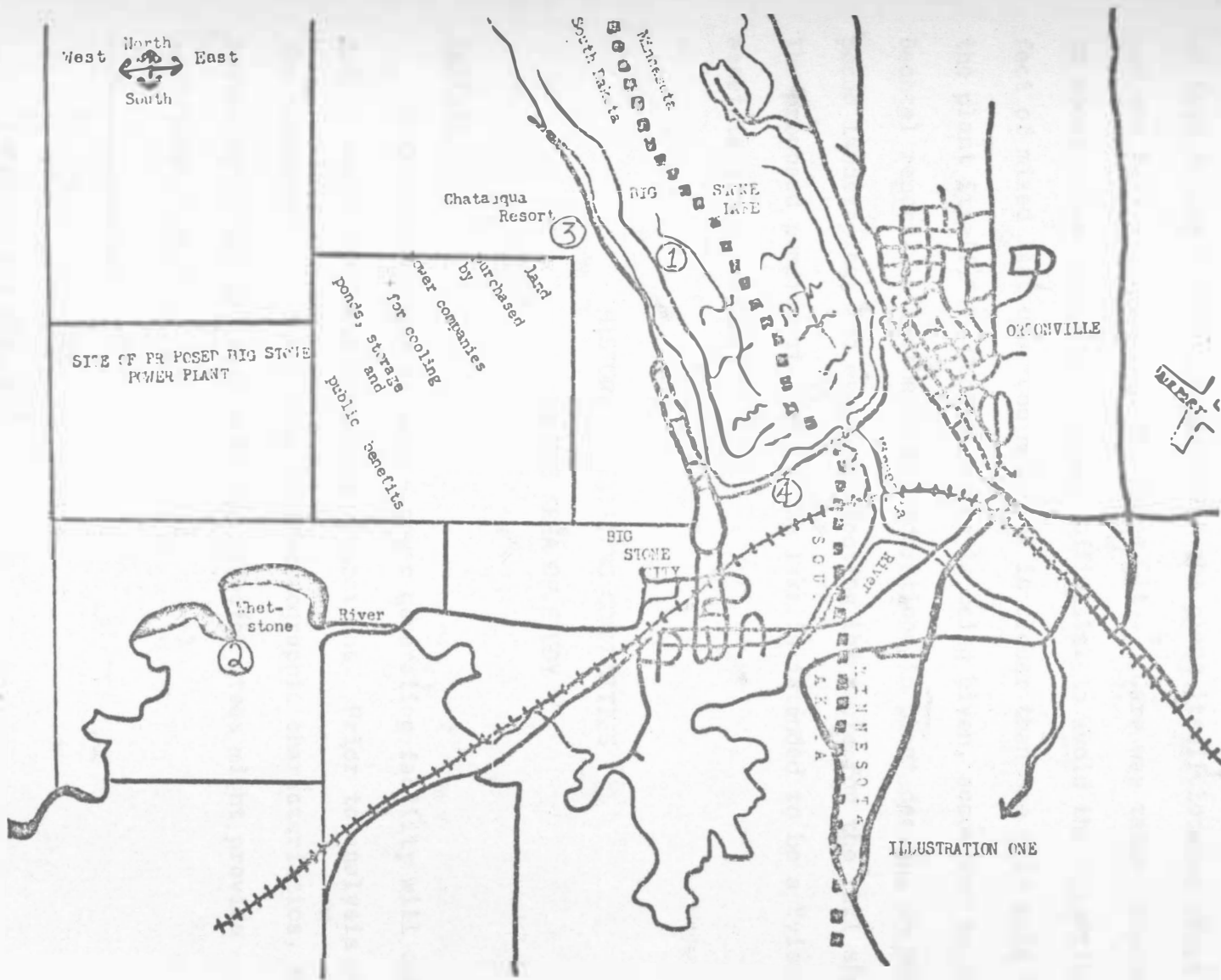


ILLUSTRATION ONE

The shaded area in Illustration One shows the general distribution of land in the 2,800-acre site with the plant itself located about one and one half miles west of Big Stone City.⁷ Care was taken, according to construction and power company officials, to avoid the blighting effect of mixed land use "(no neighbor is closer than one half mile to the plant itself)".⁸ Consideration is being given, according to a Bechtel report, to aesthetic considerations in plant design, in proposed landscaping, and even in selecting the route for the rail siding. The proposed pumping station by the lake is intended to be a "visual asset to the shoreline."⁹

HISTORY OF EXISTING COMMUNITIES

IN THE AREA OF STUDY

Preface

With construction of such a power generating facility will certainly evolve definite community alterations. Prior to analysis of the concerned area's existing socio-demographic characteristics, the following historical sketch of the affected areas might provide additional insight.

⁷Don Eng, loc. cit.

⁸Pamphlet #1, loc. cit.

⁹Bechtel Corporation, op. cit., 7-2.

Milbank, South Dakota

The original tract of land comprising the present city of Milbank, South Dakota embraced the south half of Section 6 (80 acres) and the northwest quarter (160 acres) of Section 7 of township 120 north range, 50 west in Grant County; Dakota territory land was purchased from William J. Baxter, (80 acres) Miss Henrietta Baxter, (160 acres); and the remainder from Mr. Charles Prior, a director of the Chicago, Milwaukee and St. Paul Railway Co. (C., M., & St.P., Ry. Co.). In 1880 land was platted by Charles Prior and George Bartlett, respectively, to form the townsite of Milbank junction. Incorporation limits were later extended.

In August 1880 railway service was extended to the Fledgling Community from Ortonville, Minnesota-via the Hastings--Dakota Division of C., M., & St.P., Ry. Co.'s. On October 25, 1881, Grant County (EST 1878), was organized into townships, the Village of Milbank Junction now being in Alban township.

On October 3, 1881, application was made to the Board of County Commissioners for permission to incorporate as a town. Permission was granted and on October 29, 1881, Milbank began it's formal existance as a town.

The town was named after Jerimiah Milbank of New York City, a director of the C., M., & St.P., Ry. Co. and early settlers were of Dutch-German lineage.¹⁰

¹⁰History of South Dakota, University of Nebraska Press, Lincoln 1968, pp. 164, 203.

During the incipient stages of the towns development, conflicts concerning county government were characteristic. Attempts to relocate county seats were relatively common. Prior to the platting of land in Milbank by the Hastings Dakota Railway Company, its sister and rival city, Inkpa City (now Big Stone City) was assured certainty as the county seat. The ensuing struggle between Milbank and Big Stone City for location of the County seat resulted in costly litigation, embittered feelings and near violence.

The city of Milbank has developed into one of the most highly populated and most prosperous cities in the area under study. In 1881 Milbank had a population of 123 and now boasts a population of 3,727, exceeding population figures for surrounding communities.

The growth in population might be attributed to the fact that, with the platting of land in Milbank by the Hastings Dakota Railway Company, various transportation facilities were made readily available to the emerging town. Because of such platting, both Big Stone City and Ortonville, Minnesota, are somewhat removed from railway service. There has also been considerable speculation in support of the argument that farm land in the Milbank area is superior to that in its adjacent communities. Its growth might also be associated with its being the county seat.

Milbank's major industry, of course, is farming although others do exist. The Valley Queen Cheese Factory employs about 75 people and has a total sales value of about \$3.3 million annually. Milbank Mutual Life Insurance Company is also a major economic enterprise and has

about 200 individuals on its payroll. There are at present, no vacant businesses on the city's main street and its Commerce and Community Club is quite "progress" oriented.¹¹

Big Stone City, South Dakota

Big Stone City, situated at the foot of Big Stone Lake, was originally comprised of three distinct townships all within the present city limits. The first, in order of existence, was Inkpa City, designated Post Office and platted in 1875. The next, Geneva, was a platted town in itself (date of platting unknown) and, finally, Big Stone City platted by Melvin J. Whipple in 1875.

When Whipple laid out the townsite, an agreement was entered into with the owners of Geneva and Inkpa City whereby the whole should become Big Stone City and the interests of the three consolidated by the sub-division and exchange of lots. Mr. Charles Betcher, an affluent industrialist from Montivideo, Minnesota, purchased a half-interest in the community and developed the land.

Although laid out in 1879, it was not until the advent of the railroad in the fall of that year that the town actually came into existence. During the winter months of 1879-80, many building projects were undertaken.

¹¹History of South Dakota, University of Nebraska Press, Lincoln 1968, pp. 164, 203.

Research indicated that the growth of the town was, at first, steady and continuous, although Big Stone never experienced any type of spasmodic "boom" period. Its development was steady and stable due to its natural advantages and reportedly "enterprising" citizens.

In 1885 Paul Trapp of Fargo, North Dakota established the town's major business--a shoe and harness livery, which needless to say, is no longer a viable entity.¹²

Because of the rapid development and growth of her rival city, Milbank, Big Stone City maintained a considerably smaller population. Her population in 1970 was 631.¹³

Currently no major industry is located in Big Stone City. The Big Stone Canning Company, established in 1904 at the Minnesota State Boundary Line, was originally incorporated under the laws of South Dakota, although its mailing address is currently Ortonville, Minnesota. Farming is the area's major form of employment.

The Bribo Cheese Factory located at the east edge of the town, is not within the city limits. Although several granite quarrying facilities exist in the area, most employees reside in Milbank, South Dakota.

¹²History of South Dakota, University of Nebraska Press, Lincoln, 1968, pp. 166, 204.

¹³Riley, M. P. and Wagner, R. T. Reference Tables: Population Change of Counties and Incorporated Places in South Dakota 1950-1970. Agricultural Experiment Station Bulletin 586, South Dakota State University, July, 1971.

Analysis of the Existing Community

The communities must be defined in terms of their social and political boundaries. Although political boundaries usually are fixed, formal, and explicitly stated by law; the social boundaries may be somewhat different. The boundaries of a trade area, for example, will probably differ if the shopping area is defined in terms of furniture as contrasted say, to the trade area for automobiles, and both will differ sharply from the boundaries of a trade area defined in terms of convenience (as opposed to shopping) goods. Other boundaries might exist for transportation and communication networks (e.g., commuting patterns, newspaper subscriptions, or radio listenership). Still others might be delineated by the institutional affiliations of average citizens (e.g., lodge, trade union, or church membership). In the case of Big Stone City, there is a general lack of congruency between the political community and the social community.

Big Stone City is a borderline community. Political divisions at the municipal, county, multi-county, and state levels all tend to cut across segments of the social community; which in this context, also includes the larger town, Ortonville, Minnesota, which had a 1970 population of 2,800 (see Illustration One).

Multi-county Planning and Development (PAD) Region contains the South Dakota Northeast Region (thirteen counties), the Minnesota West Region (ten counties), and the Minnesota West Central Region (eight counties)--see Illustration Two.

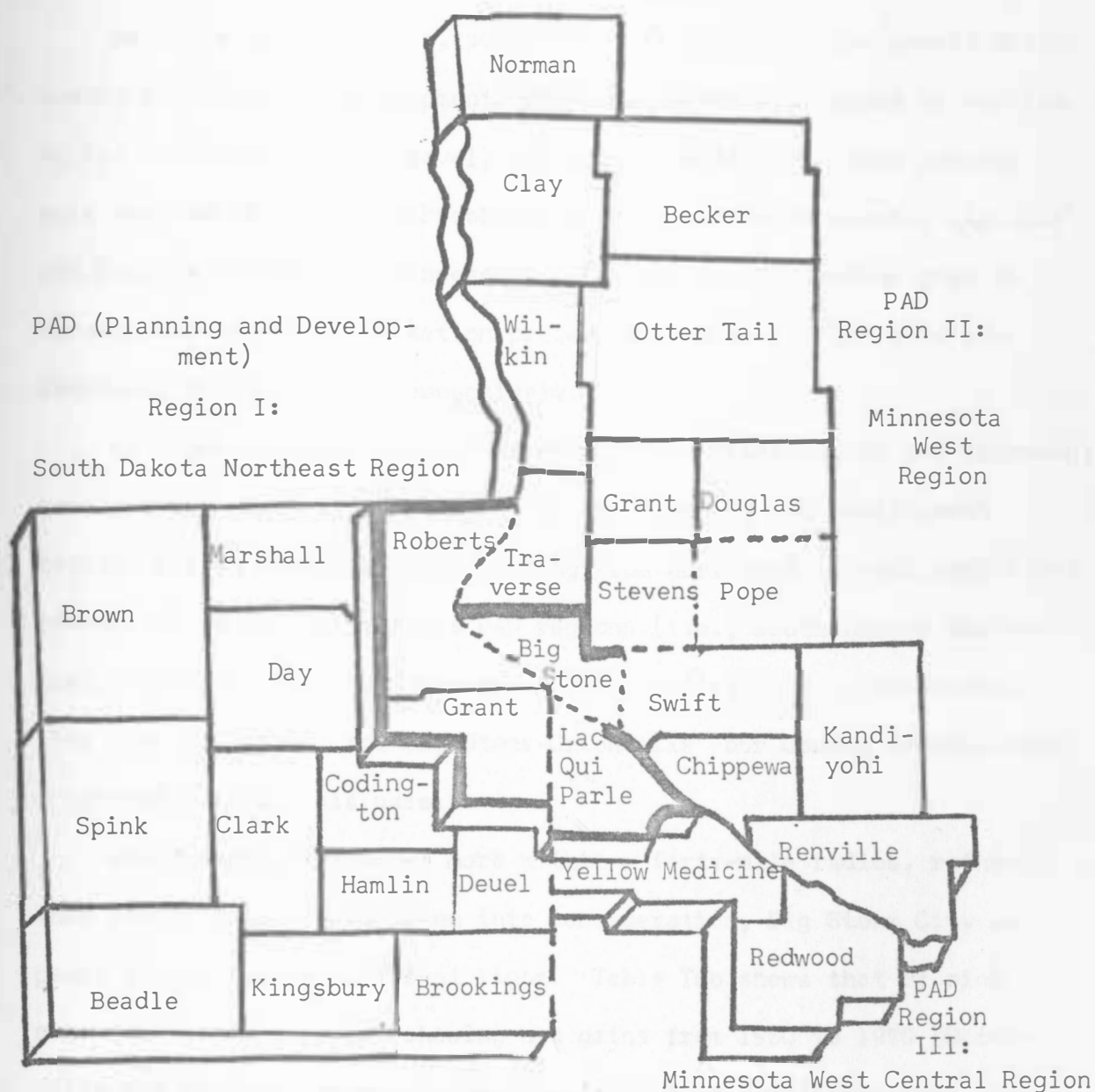
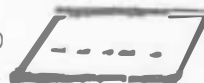


Illustration Two: Multi-county Planning Regions.

Four-county Region



Boundaries of Multi-County PAD Regions



Sources: South Dakota State Planning Agency, Minnesota State Planning Agency: 1966 and 1969.

As Table One indicates, population in the thirty-one county Multi-county Planning and Development Region has generally tended to decline. At the individual county level, the only exceptions to this general rule seem to be Brown and Brookings counties in South Dakota, and Clay and Douglas counties in Minnesota. Clay and Brown counties grew as a consequence of the urbanization process in Moorhead, Minnesota and Aberdeen, South Dakota, respectively.

As Illustrations Four and Five indicate, thirteen, of the eighteen, more heavily depopulated counties in the Planning and Development Region, lie on a central axis running from northwest to southeast along boundaries of the three-state PAD regions (i.e., South Dakota Northeast, Minnesota West, and Minnesota West Central). As Illustration Five also indicates, the Big Stone-Ortonville Four County Region forms a central part of this axis.

When towns of 1,000 or more within a forty-mile radius, rather than county totals, are taken into consideration, Big Stone City appears in a slightly different light. Table Two shows that of nine such towns, the only two showing net gains from 1960 to 1970 (Ortonville and Milbank) other than Morris (a college town) were also the two towns closest, geographically, to Big Stone City (two miles and eleven miles, respectively).

Economic Base

Table Three shows a calculation of the Big Stone-Ortonville Four County Region's economic base measured in terms of location quotients.

TABLE ONE

POPULATION TRENDS: PLANNING AND DEVELOPMENT
REGION: 1960-1970

Region	1970	1960	Change
I. South Dakota Northeast ₁	132,964	177,488	-25.1%
II. Minnesota West ₂	189,729	191,804	-1.1
III. Minnesota West Central ₃	134,313	146,977	-8.6
Total: 31-County PAD Region	457,006	516,269	-11.5

TABLE TWO

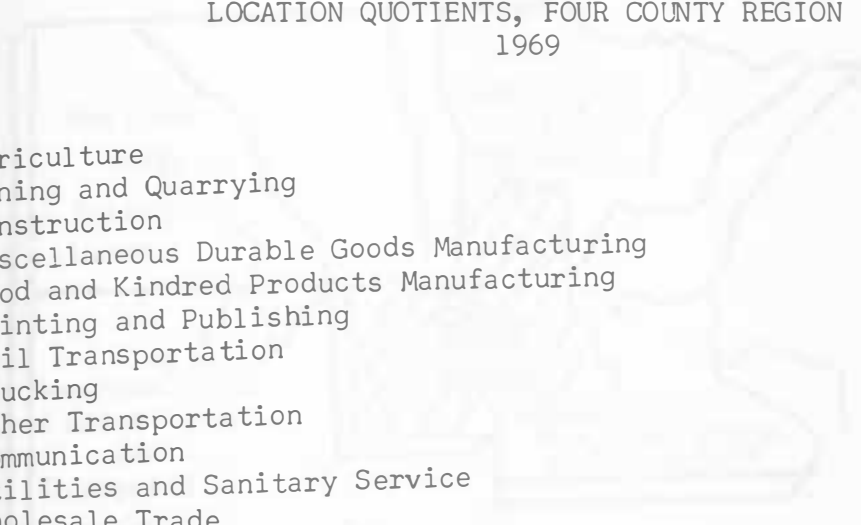
POPULATION TRENDS: TOWNS OF ONE THOUSAND
OR MORE PERSONS WITHIN A FOURTH MILE RADIUS
OF BIG STONE CITY: 1960-1970

Town	1970	1960	Change
Appleton, Minnesota	1,783	2,172	-17.9%
Clear Lake, South Dakota	1,127	1,137	-0.9
Dawson, Minnesota	1,677	1,766	-5.0
Madison, Minnesota	2,257	2,380	-5.2
Milbank, South Dakota	3,679	3,500	5.1
Morris, Minnesota	5,120	4,199	21.9
Ortonville, Minnesota	2,816	2,679	5.3
Sisseton, South Dakota	2,913	3,218	-9.5
Watertown, South Dakota	13,248	14,077	-5.9
Wheaton, Minnesota	2,011	2,102	-4.3

Sources: United States Census of Population, Preliminary Report, 1970.

1. Beadle, Brown, Brookings, Clark, Codington, Day, Deuel, Grant, Hamlin, Kingsbury, Marshall, Roberts, and Spink Counties in South Dakota.
2. Becker, Big Stone, Clay, Douglas, Grant, Norman, Otter Tail, Stevens, Traverse, and Wilkin Counties in Minnesota.
3. Chippewa, Kandiyohi, Lac Qui Parle, Pope, Redwood, Renville, Swift, and Yellow Medicine Counties in Minnesota.

TABLE THREE

LOCATION QUOTIENTS, FOUR COUNTY REGION
1969


Agriculture	6.5
Mining and Quarrying	0.5
Construction	0.6
Miscellaneous Durable Goods Manufacturing	1.0
Food and Kindred Products Manufacturing	5.5
Printing and Publishing	1.0
Rail Transportation	0.4
Trucking	1.0
Other Transportation	0.4
Communication	0.2
Utilities and Sanitary Service	0.2
Wholesale Trade	0.8
Food Stores	0.9
Eating and Drinking Places	1.0
Other Retail Trade	0.9
Finance, Insurance, Real Estate	0.5
Business Services	0.3
Repair Services	1.2
Private Household Services	0.8
Other Personal Services	0.6
Entertainment	2.3
Hospitals	0.2
Public Education	1.3
Private Education	0.6
Welfare, Religious, Nonprofit Organizations	1.2
Other Professional Services	0.4
Public Administration	0.6
Other not reported	0.3

Source: Office of Business Economics, Letter to South Dakota State University, Rural Sociology Department, February 14, 1972.

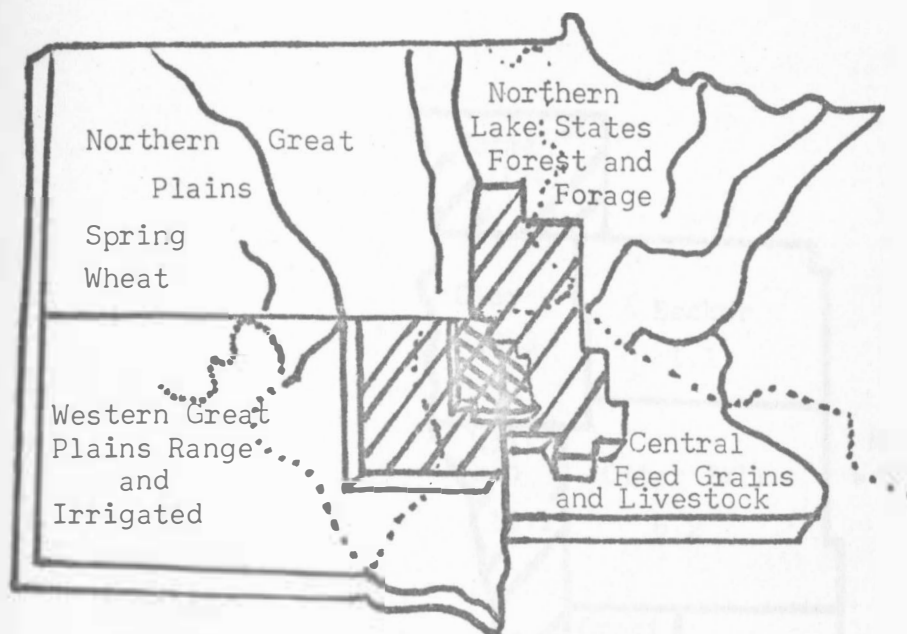


Illustration Three: Tri-state land regions.

Boundaries, Land Resource Region

31-County PAD Region

4-County Big Stone-Ortonville Region

Source: Austin Morris, Land Resource Regions and Major Resource Areas of the United States. USCS, USDA Agriculture Handbook # 296, Washington D. C.: USGPO, December, 1965.

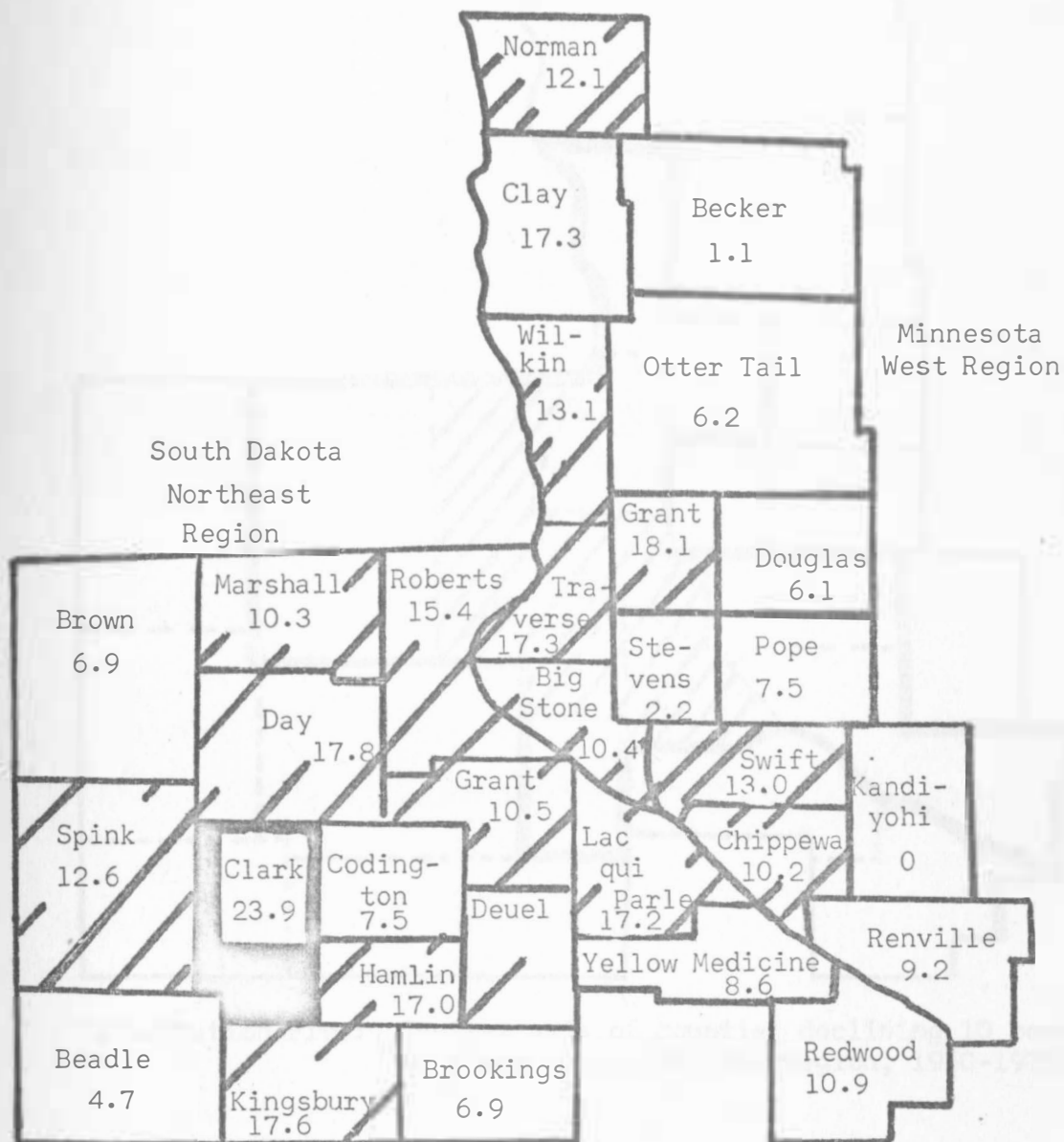
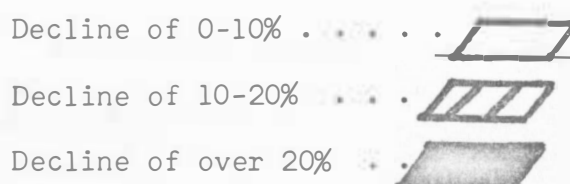


Illustration Four: Percent of population change: 1960-1970. Thirty-one county planning and development region.



Source: United States Census of Population: Preliminary Report, 1970.



Illustration Five: Central axis of counties declining 10 percent or more: 31-county PAD region, 1960-1970.

Central Axis Counties



Four-County Region



Source: Illustration Four

The location quotient is a measure of local economic activity measured as a ratio to economic activity of the nation as a whole.¹⁴ Per capita employment as given in the 1960 Census by each major industrial grouping in the four-county area was compared to per capita employment of the same industry in the nation as a whole the same year. Quotients greater than one (e.g., agriculture, food processing, repair services, entertainment, education, and welfare activities) usually tend to indicate wealth-generating or "export" activities. Quotients equal to one (e.g., "other" durable goods manufacturing, printing and publishing, trucking, eating and drinking places) tend to indicate neither "import" nor "export" activity.

The region's heavy reliance on agriculture helps to explain its decline in population from 1960 to 1970. Increasing farm size resulted in substantial out migration of farm labor. Larger farms have also tended to produce higher standards of living for the remaining population. As Table Three indicates, most location quotients in the trade sectors are greater than zero but less than one. This indicates a partial loss in wholesale-retail trade to the larger SMSA's. As living standards rise, shoppers seem to travel greater distances to purchase goods. The second-highest location quotient (5.5) is that of food processing. Significant wealth-generating activities in this respect consist of a meat processing plant, two cheese factories, and a canning factory. The only other location quotient higher than two shown

¹⁴Big Stone Comprehensive Plan: Project P-117. Saint Paul: Consulting Services Corporation, January, 1970. 55.

in Table Three is that of Entertainment Services (2.3). This is probably due, in large measure, to the great popularity of Big Stone Lake and Lac Qui Parle Lake as recreation areas, especially for fishermen. In addition to privately owned resorts and numerous summer camps owned and operated by various nonprofit organizations, for example, these lakes accommodate three state parks: Big Stone and Lac Qui Parle State Parks in Minnesota with 1968 attendance records of 7,688 and 13,896 respectively;¹⁵ and Hartford Beach State Park in South Dakota with a 1970 attendance record of 100,000.¹⁶

Table Four shows the percent of total labor force for major economic activities in Grant County as compared to the Four County Region. On this basis, Grant County exceeds the Four County Region by more than one percent in textile and apparel manufacturing, other transportation services, and finance-insurance-real estate. Finance-insurance-real estate held the largest margin, in this respect, due to the presence, in Grant County, of the Milbank firm, the Milbank Mutual Insurance Company, an important "export" activity.

These employment figures, however, do not give a totally balanced picture of the Four County Region's true economic base. Table Five shows that according to a private research firm, 374 of the 448 firms

¹⁵E. D. Schooler, "Regional Multipliers: The Economic Base Type." in W. T. Isard (ed.), Methods of Regional Analysis: An Introduction to Regional Science. Cambridge: M.I.T. Press, 1960. 196-8.

¹⁶Interview with Richard Kasuske, Warden. Hartford Beach State Park, South Dakota, December, 1970.

TABLE FOUR

PERCENT OF TOTAL EMPLOYMENT BY INDUSTRY, GRANT COUNTY,
FOUR COUNTY REGION, U. S., 1969

Type of Industry	Grant	4-Co.	U.S.
Agriculture, Forest and Fisheries	44.5%	45.7%	6.7%
Mining and Quarrying	0.2	0.5	1.0
Construction	3.9	4.0	5.9
Durable Goods Manufacturing	---	0.4	19.8
Other Durable Goods Manufacturing	1.9	0.7	1.2
Food Processing	3.7	3.2	2.8
Textiles and Apparel Manufacturing	2.2	0.1	1.5
Printing and Publishing	1.0	0.6	1.8
Railroad Transportation	0.9	0.5	1.5
Trucking	1.5	1.3	1.4
Other Transportation	1.4	0.1	1.4
Communication	0.9	0.9	1.3
Utilities and Service	0.5	0.5	1.4
Wholesale Trade	2.1	2.8	3.4
Food Stores	2.8	2.4	2.6
Eating and Drinking Places	1.9	3.0	2.8
Other Retail Trade	8.2	8.6	9.4
Finance, Insurance, Real Estate	3.2	1.9	4.2
Business Services	0.8	0.3	1.2
Repair Services	1.6	1.8	1.3
Private Household Services	3.7	2.8	3.0
Other Personal Services	2.3	1.8	3.0
Entertainment	0.5	0.7	0.8
Hospitals	1.1	1.9	2.6
Public Education	3.9	5.3	3.9
Private Education	1.1	0.9	1.3
Welfare, Religious, Nonprofit Organizations	1.9	1.6	1.3
Other Professional Services	0.9	1.2	2.5
Public Administration	2.5	3.1	5.0
Other not reported	0.5	1.2	4.0

Source: Office of Business Economics, Letter to South Dakota State University, Rural Sociology Department, February 14, 1972.

TABLE FIVE
NUMBER OF FIRMS BY ESTIMATED FINANCIAL
STRENGTH AND TYPE OF ECONOMIC ACTIVITY,
FOUR COUNTY REGION, 1969

Type of Economic Activity	Number of Firms					
	Over \$500,000	300,000 to 500,000	200,000 to 300,000	75,000 to 200,000	50,000 to 75,000	Less than \$50,000
Agriculture						5
Agricultural Services						3
Quarrying	2	1				1
Building Construction, Gen. Contr.		1		1		7
Contractors Other Than Building					2	1
Construction: Special Trade Contr.			1		1	29
Food and Kindred Products	3		1	1		1
Lumber & Wood Products Mfg.						1
Furniture & Fixtures Mfg.						1
Stone, Clay, Glass, Concrete Mfg.		2	1		1	3
Machinery Except Electrical Mfg						2
Transportation Equipment Mfg						1
Miscellaneous Mfg						1
Passenger Transportation						1
Motor Freight Transport & Warehouse		1			1	13
Communications						5
Electric, Gas & Sanitary Svc.	1					
Wholesale Trade	1	1	2	4	6	39
Farm Equip., Bldg. Material, Hardwr.		1	2	2	5	42
Retail Trade: General Merchandise				1	1	16
Food Stores					2	39
Auto Dealers & Service Stations			1		6	44
Apparel and Accessory Stores				1		8
Furniture, Home Furnishing & Equip.					2	13
Eating & Drinking Places						30
Miscellaneous Retail	1	1	2	4	3	39
Hotels & Rooming Houses						2
Personal Services					1	9
Miscellaneous Business Services						3
Auto Repair Services & Garages						8
Miscellaneous Repair Services						3
Amusement and Recreation						1
Printing & Publishing Mfg					3	3
TOTAL	8	8	10	14	34	374

Source: Office of Business Economics, Letter to S.D.S.U. Rural Sociology Department, February 14, 1972

in the Four County Region had estimated financial strengths of \$50,000 or less. The largest number of these were auto dealers and service stations (44 firms) followed by farming equipment, building material and hardware (42 firms), wholesale trade, food stores, and miscellaneous retail (30 firms a piece); and special trade construction contractors (29 firms).¹⁷

Eight firms in the Four County Region had estimated financial strengths of \$750,000 or more. Of this number, two were involved in stone quarrying and stone finishing; three were involved in food processing (two cheese factories, and one canning factory); and two were agricultural cooperatives. Running a close second to these firms in estimated financial strength were manufacturers of stone, clay, and glass products (including one concrete products company); one trucking-warehousing firm, and three wholesale-retail trade establishments.

The significance of quarrying noted in the survey of firms (which was not brought to light by employment statistics) is more sharply illustrated in data compiled by the United States Bureau of Mines.¹⁸ According to these data, Grant County was third highest in dollar value of mineral products produced by all counties in South Dakota for 1968. Table Six, based on this source, shows the per capita dollar volumes of

¹⁷Office of Business Economics, Letter to South Dakota State University Rural Sociology Department, February 14, 1972.

¹⁸United States Bureau of Mines - United States Department of Interior, 1968 Minerals Yearbook. Washington, D. C.: USGPO, 1970.

TABLE SIX

PER CAPITA DOLLAR VOLUME OF MINERAL PRODUCTS: 1968

Grant County	\$ 740
Four County Region	200
I. South Dakota Northeast Region	65
II. Minnesota West Region	23
III. Minnesota West Central Region	18
Thirty One County PAD Region (Total: I, II, & III)	\$ 34

Source: Bureau of Mines, USDI, 1968 Minerals Yearbook. Washington, D. C., USGPO, 1970.

mineral products produced in Grant County, in the Four County Region, and in the 31-County, Multi-county PAD Region.

As Illustration Three showed, the Four County Big Stone-Ortonville Region is located in the extreme northwest corner of the multi-state Central Feed Grains and Livestock Land Resource Region which extends south and east through southern Minnesota and eastern South Dakota into Iowa and eastern Nebraska. Table Seven demonstrates the Four County Region's transitional nature in this respect. Grant County and the South Dakota Northeast Region (Region I) shows proportionately greater reliance on livestock; while in the Four County Region as a whole and in the Minnesota West Region, per capita dollar volume of agricultural goods produced is more evenly balanced between crops and livestock.

Table Eight, finally, shows the per capita deposits in savings and loan in banking institutions. This index may be useful, for example, in determining whether development capital is available locally or whether it is more realistic to seek possible investment capital from outside sources; and it is also a useful index to the general level of personal income.¹⁹

It is, in many respects, unrealistic to speak of the community facilities of Big Stone City, South Dakota, without including those of Ortonville, Minnesota. The telephone system, for example, serves both

¹⁹Board of Governors, Federal Reserve System, Distribution of Bank Deposits by Counties and SMSA's. Washington, D. C.: Federal Reserve System, February, 1965.

TABLE SEVEN

PER CAPITA DOLLAR VOLUME OF CROPS AND LIVESTOCK, 1964

	<u>Crops</u>	<u>Livestock</u>	<u>Total</u>
I. South Dakota Northeast Region	\$ 340	\$ 870	\$ 1,210
II. Minnesota West Region	310	330	640
III. Minnesota West Central Region	450	680	1,130
IV. Thirty-One County PAD Region	360	590	950
V. Four County Region	790	490	1,280
VI. Grant County	280	910	1,190

Source: 1964 Census of Agriculture.

TABLE EIGHT

APPROXIMATE PER CAPITA SAVINGS DEPOSITS

Grant County	\$ 1,200
Four County Region	1,200
I. South Dakota Northeast Region	1,300
II. Minnesota West Region	1,100
III. Minnesota West Central Region	1,300
Thirty-One County PAD Region (Total I, II & III)	1,200
Tri-State Region (Minnesota and the 2 Dakotas)	1,600
United States	1,850

Sources: Board of Governors, Federal Reserve System, Distribution of Bank Deposits by Counties and SMSA's. Washington, D. C.: Federal Reserve System, February, 1965. U. S. Bureau of the Census, 1960 Census of Population, Final Report.

cities as if they were a single community. Students living in Big Stone City attend high school in Ortonville. Residents of Big Stone City use Ortonville's airport and bus terminal facilities, and also make most of their convenience and shopping purchases in Ortonville. Many Big Stone City residents commute to jobs in Ortonville, while some Ortonville residents commute to jobs in and around Big Stone City. Nevertheless, Big Stone City does maintain its own elementary school (K-9), its own water and sewer system, and its own paved streets.

Public Safety

Law enforcement in Big Stone City is provided by a full-time constable, with incarceration facilities provided by the county jail in Milbank, the county seat, which is located ten miles west of Big Stone City.²⁰ Grant County has established a fund for new facilities, in this respect.²¹ Big Stone City's 26-member volunteer fire department is equipped with three trucks; two pump trucks and a tank truck that is also equipped with two auxiliary pumps. Big Stone City is said to possess a fire insurance rating of "B".²²

²⁰Interview with Lawrence Pepka, City Engineer. Big Stone City, South Dakota, December, 1970.

²¹Interview with Elizabeth Grams, Grant County Treasurer, Milbank, South Dakota, December, 1970.

²²Lawrence Pepka, loc. cit.

Sewer and Water

Big Stone City's water system is said to consist of three wells, one 55,000-gallon storage tank, and a network of six and eight-inch mains. According to the City Engineer, the system uses two tankfuls of water (110,000) gallons per day. Adjusting for industrial use (said to be three million gallons per month), the community's 160 households would consume about 10,000 gallons (or about 64 gallons per household) per day.

Ortonville's water system consists of wells, a 400,000 gallon storage reservoir, a 150,000 gallon elevated storage tank, and a treatment plant utilizing the Imhoff Tank Process of chlorination and fluoridation.²³ This system serves 980 households and one major industrial user. According to Ortonville officials, households consume about 243,500 gallons of water per day and the industrial user, about 6,500 gallons (780,000 per quarter) per day. This would appear to be about 248 gallons per household per day, almost four times the per-household consumption of Big Stone City. This discrepancy appears overly large, and a thorough-going study of Big Stone's system by consulting engineers is recommended.

Big Stone City's sewage treatment facilities consist of two adjacent lagoons (sometimes referred to as raw sewage stabilization ponds), one two acres in extent and the other four acres. Due to private facilities maintained separately by the cheese and canning factories,

²³Big Stone County Comprehensive Plan, op. cit.

little, if any, industrial effluent reaches these lagoons; and current plans of the Bechtel Corporation include on-site treatment facilities for power plant employees during the construction and operation phases. According to the Big Stone City Engineer, the present facilities would be more than adequate for 1,500 additional persons or 500 additional households.

Ortonville's sewage treatment plant was constructed in 1965 and uses a complicated principle related to the settling tank-sludge digestion process. Its normal capacity is 4,300 persons, about 1,500 more than Ortonville's 1970 population of 2,800.²⁴ Load on the plant has increased 38.8 percent in the last five years; however, and Ortonville's total population has only increased 5.3 percent in the last ten years. For this reason, the 1,500-person excess capacity measured in terms of 1965 standards is not completely realistic for 1970 standards, due to the increases in per capita demand for public services brought about by higher standards of living (more garbage disposals, for example). The plant's "design" or peak capacity, however, is 7,500 persons rather than 4,300. Thus, it is probably more than adequate for sudden increases in population due to the in-migration of construction personnel.²⁵

²⁴Interview with Howard Blanchen, City Engineer, Ortonville, Minnesota, December, 1970.

²⁵Bechtel Corporation, op. cit., 7-2.

Pertinent Ecological Legislation

Environmental Pollution, a topic which within the last four or five years has become virtually a household word, has long been of interest to legislators. As early as 1888 the State of South Dakota had enacted legal measures designed to maintain the quality of its waterways.

Since that time much legislation has been enacted regarding the pollution of the States waters. This summary will present in various pertinent legislation regarding environmental pollution within the State of South Dakota and the cooperating contiguous States of Minnesota and North Dakota.

Purpose

Inasmuch as little legislation and certainly no significant legislation has been passed in South Dakota in the area of air pollution, our discussion will generally attempt to elaborate upon legislation affecting the quality of South Dakota's waterways. Because the Big Stone plant will emit certain oxides of sulphur into the atmosphere, a brief discussion of federal authority regarding such emissions will be proposed.

Federal Authority Regarding Air Pollution - Emphasis Upon the Emission of Sulphur Oxides

Although legislation within South Dakota is scant regarding air pollution, there (of late) has been much activity in this area by the Federal Government.

Because the Big Stone Power Plant will burn a sulphur-base-lignite coal in its operation, future legislation in this area might well be forthcoming. Hence, a summary discussion of some federal policies will be presented.

Sulphur oxides are one of the most harmful air pollutants discharged into our atmosphere, accounting for about one-half of the total damages from air pollution.

They damage human health, vegetation, materials, and property. Sulphur oxides can permanently damage delicate lung tissue and have been linked to increased incidence of diseases such as bronchitis and lung cancer. National health costs resulting from sulphur oxides emissions are conservatively estimated at over \$3.3 billion annually. The effects of sulphur oxides on materials, property, and vegetation cost the Nation an estimated additional \$5 billion annually. These total damages of \$8.3 billion amount to about \$.20 for each pound of sulphur now emitted into our atmosphere.²⁶

Sulphur oxides result from the burning and distilling of oil and coal, the smelting of nonferrous ores, and other industrial processes. An estimated 36.6 million tons of sulphur oxides are now emitted annually as follows:

²⁶The President's Environmental Program Controlling Pollution, U. S. Government Printing Office, 1971.

	<u>Million tons</u>	<u>Percent</u>
Power plants	20.0	55
Other combustion	8.2	22
Smelters	4.0	11
Refineries	2.4	7
Miscellaneous	2.0	5
Total . .	36.6	100

If uncontrolled, annual sulphur oxides emissions will nearly quadruple, to an estimated 126 million tons by the year 2000. Power generation accounts for an ever increasing proportion of the emissions.²⁷

The Clean Air Amendments of 1970 greatly improve the mechanism to control air pollutants, including sulphur oxides. These amendments require promulgation of national air quality standards for pollutants by the Administrator of the Environmental Protection Agency. Once standards have been promulgated, the states must prepare a plan to implement the standards within 3 years. Exceptions to the 3-year period can only be made by the EPA Administrator if adequate control methods are not commercially available or have not been available for a sufficient period of time. An intensive research, development, and demonstration effort is underway to develop commercial technology for controlling sulphur oxides.²⁸

Because there is no significant legislation in South Dakota regarding air pollution, the previous was presented for informational

²⁷Ibid.

²⁸Ibid.

purposes. The Big Stone plans, however, might necessitate the passage of such legislation as its' emissions will certainly pollute the atmosphere.

Pollution Control

Since pertinent Federal Legislation and authorities regarding environmental pollution have been mentioned, discussion shall now concentrate on such as it applies to the State of South Dakota. Again, within South Dakota, there presently exists no adequate legislation regarding air pollution. This lack of legislation might well be attributed to the fact that for the most part the State has a dearth of industry. Considering the vast territory of the State and its low population, such legislation apparently is at this time deemed superfluous. It will be interesting to note, how, in future years, the State will comply with Federal directives.

State Water Pollution Control

Firm definitive legislation regarding water pollution control has been reflected in the South Dakota Code since 1935 and most current legislation is at least in part a revision of existing law.

To control pollution, Section 46-25-1 of the South Dakota Code - (supplement 1960) requires the establishment of a committee on water pollution. The composition of Pollution Control Commissions and classification of our states waterways are discussed in detail in Appendix I.

Summary

From the previous discussion, it appears that the communities to be most affected by construction of the Big Stone Plant will not be altered to any great degree. Because of the final employment force of only fifty personnel at the plant in its operational phase, probably no significant influence will be felt in the surrounding communities.

It is possible, that in the construction phase the surrounding communities will be affected favorably in terms of the additional spending of the approximately five hundred personnel. Community service facilities are at present apparently capable of satisfying the needs of an influx of such a number of people.

CHAPTER III

REVIEW OF LITERATURE

PART I

Introduction

Since this dissertation is relevant to the area of attitudinal research and analysis, a clarification of the concept of attitude is necessary.

Scarcely one hundred years ago the term attitude was used exclusively with reference to a person's posture. To describe someone as adopting a "threatening" or "defiant" attitude was to refer to his physical mien.¹

Today the term is, of course, not a technicality of social science but is readily understood by all English-speaking people. There is no great communication difficulty encountered today in speaking to anyone of attitudes toward China, Russia, or one's work. Much of the terminology employed by social scientists has been taken directly from everyday language and the scientific use of a term may not be intended to carry the identical connotations of the common sense world.

An attitude to be considered such in Sociology must satisfy the following criteria:

¹Jahoda, M. and Warren W., Attitudes, Penguin Books Ltd., Middlesex, England, 1966, p. 7.

- A) It must have definite orientation in the world of objects (or values), and in this respect differ from simple and conditioned reflexes.
- B) It must not be a totally automatic or routine type of conduct but must display some tension even when latent.
- C) It must vary in intensity, sometimes being regnant, sometimes ineffective.
- D) It must be rooted in experience and therefore not simply an instinct.²

The following are typical definitions of attitudes which have emerged:

"Attitude--the specific mental disposition toward an incoming or arising experience, where by that experience is modified; or a condition of readiness for a certain type of activity."³

"An attitude is a mental disposition of the human individual to act for or against a definite object."⁴

"An attitude is a mental and neutral state of readiness, organized through experience, exerting a directive or dynamic influence upon the individuals response to all objects and situations with which it is related."⁵

²Ibid., p. 19.

³Warren, H. C., Dictionary of Psychology. Boston: Houghton Mifflin, 1934, p. 6.

⁴Droba, D. D., "The Nature of Attitude", Journal of Social Psychology, pp. 4, 444-63, 1933.

⁵Allport, G. W. In C. M. Murchinson (Ed.) Handbook of Social Psychology. Worcester, Mass.: Clark University Press, 1935, p. 216.

Psychologists and sociologists, to whom the notion has more conceptual significance, differ contextually rather than conceptually in their usage of the term. Historically, both disciplines have regarded attitudes as tendencies to act with regard to some specificable entity.

Attitudes then may serve as possible refferent orientations as sources of behavioral action. The following will review selected variables deemed by some researchers as possibly influencing attitudes and thus behavior.

Age

Most sources researched indicated a significant relationship between an individual's age, and his resultant attitudes. The following will in summary fashion present related material.

Hertzler in his discussion of institutional change and the inflexibility of institutions, arrived at a proposition that the aged usually evidenced more conservative attitudes on most subjects. Aged individuals were therefore considered as possessing attitudes more favorable toward presently existing conditions. According to Hertzler the aged, because of their lack of familiarity with new procedures regarded change as a tremendously threatening phenomenon.⁶

The results of a study conducted by Marshall in 1953 appears to substantiate the above to some extent. Marshall studied certain factors assumed associated with individual attitudes toward secondary education

⁶Hertzler, J. O., Social Institution, Lincoln, University of Nebraska Press, 1946, p. 244.

in a rural Wisconsin community. His findings indicated a relationship between age and attitude toward secondary education.

He found that individuals of 40 years of age and older held more favorable attitudes toward existing secondary educational associations and that individuals under 40 years of age held attitudes which were generally unfavorable.⁷

Freedman surveyed approximately two hundred members of high school and college graduating classes spanning a 52 year period. The major focus of his study centered around individual attitude toward public issues with individuals over 45 years of age being markedly more conservative than those under that age category.⁸

Satterlee, in a Study of Attitudes Toward Present and Forthcoming School Reorganization in a South Dakota County, inferred association between age and attitude toward such reorganization. He found that nearly two-thirds of the respondents of age 45 and over were favorably disposed toward present high school conditions. Conversely, the majority of individuals under age 45 evidenced less favorable attitudes toward the present school system.⁹

⁷Marshall, D. G. "Factors Associated with Attitudes Toward High School Education in Rural Wisconsin," Rural Sociology, Vol. 18., University of Kentucky Press, Lexington, pp. 359-365.

⁸Jahoda, M. and Warren W. "Attitudes", Penguin Books Ltd., Middlesex, England, 1966, p. 92.

⁹Satterlee, J. L., "A Study of Attitudes Toward the Present School System and School Reorganization in a Rural South Dakota County, South Dakota State University, 1963, p. 455.

Photiadis, in a study of attitudes toward a water resources development program in central South Dakota, interviewed 619 individuals in a five county area to assess existing attitudes toward the program. He found that individuals under age 35 had more favorable attitudes toward the incoming program than individuals over age 65.¹⁰

Summary

Citations from previous studies appear to consistently assert and in large part, substantiate a relationship between age and attitudes toward studied phenomena. Generally, more conservative attitudes tend to be exhibited by older individuals while younger individuals evidence a greater degree of liberalism.

Proposition I

In view of the previously mentioned research the following shall be stated as a general proposition for possible utilization in the formulation of research hypotheses.

An individual's attitudes are generally affected by his age, with older individuals being more conservative and resistant to change than younger individuals.

Education

Previous research regarding the possible influence of education on attitudes presents findings which are often inconsistent and conflictive. Many are able to substantiate significant relationships in dictating

¹⁰Photiadis, J. "Attitudes Toward the Water Resources Development Program in Central South Dakota", S.D.S.U., 1960, pp. 9-13.

that as the individual obtains a greater amount of education, he adopts attitudes different from those he previously had. However, in many instances education fails to have significant influence upon attitude.

Photiadis in this study of attitudes toward the water resources development program in central South Dakota found a highly significant relationship between level of education and attitude toward the water resources program. Accordingly, people having more education were more favorably disposed toward the program than those with a lesser amount of education. Photiadis concluded that, "people with more education have more favorable attitudes."¹¹

Fortney, in a study of attitudes of farm operators in four South Dakota counties toward the conservation of a natural resource, found a significant relationship existing between level of education and both attitudes toward watershed development and rate of adoption of conservation practices. He inferred that individuals with a higher level of education tend to hold more positive attitudes toward watershed development. Additional conclusions indicated that individuals possessing more education were more favorable toward adoption of conservative practices. Both conclusions here seem to indicate that individuals with greater educational levels are more receptive to change.¹²

¹¹Photiadis, J. D. Attitudes Toward the Water Resources Development Program in Central South Dakota, S.D.S.U., 1960, pp. 15-16.

¹²Fortney, C. T. Attitudes of Farm Operators in Four South Dakota Counties Toward the Conservation of a Natural Resource, S.D.S.U., 1970, pp. 81-84.

Clark in "The Sociology of Education," posits several statements based upon research which appear to lend credence to the proposition that education, because it broadens one's horizons tends toward influencing him to accept change. Clark also states that although this might usually be the case education may, in many instances, cause an individual to closely scrutinize a proposed change and reject it. The logical conclusion to be derived here is that education encourages constructive change based upon cautious insight.¹³

Seyfert found in a study of three New England schools, that those individuals possessing favorable attitudes toward the present school systems generally had lower levels of educations (1-8 years).¹⁴

Summary

Research reviewed regarding the existence of a relationship between educational level and manifest attitudes seems more often than not to substantiate such association.

Proposition II

Considering the previous information, the following general proposition regarding the relationship of educational level and attitudes is stated.

Educational level appears to be significantly associated with most attitudes.

¹³Clark, B., "The Sociology of Education", Handbook of Modern Sociology, Rand McNally Corp., Chicago, 1965, pp. 736-739.

¹⁴S. C. Seyfert, loc. cit., pp. 417-427.

Knowledge

Similar to and closely associated with educational level, is the degree of knowledge the individual possesses regarding a particular subject. Although research regarding level of knowledge as it is associated with environmental attitude is unavailable at this time, literature reviewed in parallel areas indicates mixed findings.

Gross, in "The Sociology of Education," indicates that as an individual's knowledge regarding a phenomenon increases his attitudes toward it might well be altered. The mere fact that an individual possesses an attitude toward something is indicative of his having some knowledge of the phenomenon.¹⁵

By virtue of the above it appears that knowledge level does have definite association with attitudes toward anything in general.

Lazarsfeld, et. al., indicate also that in general, to possess a definite attitude toward anything involves at least a modicum of knowledge.¹⁶

On the other hand, Kroetch and Crutchfield allude to the point that although the individual may be exposed to knowledge he may not pay attention to, or accept the new knowledge. "Despite new knowledge, his feelings, emotions and wants may prevent cognitive change."¹⁷ From

¹⁵Gross, Neal, "The Sociology of Education", Sociology Today, Basic Books, Inc., New York, 1959, pp. 128-139.

¹⁶Lazarsfeld, Sewell, Willensky, The Uses of Sociology, Basic Books, Inc., New York, 1967, pp. 304-310.

¹⁷Op. Cit., p. 38.

this it appears that the stronger forces of feelings and emotions may in some cases influence the assimilation and utilization of new knowledge. Such new information may in fact be utilized in substantiation of emotions and feelings, hence has little influence upon attitudes.

Satterlee, in his study of school reorganization found no significant association between level of knowledge and related attitudes toward school reorganization. He did, however, state that a large proportion of respondents with lower levels of knowledge were generally favorable toward the present high school, whereas those individuals possessing higher levels of knowledge generally held unfavorable attitudes.¹⁸

Summary

Literature regarding the association between knowledge level and attitudes is in many instances contradictory. Although most authors make no pointed statement of association, many infer such.

Proposition III

Due to the often inferred possibility of an existing relationship between knowledge and attitudes the following shall be posited:

Knowledge appears to influence individual attitude.

Religion

Research regarding the possible association between religion and environmental attitude is at this writing unavailable and therefore

Satterlee, J. L. A Study of Attitudes Toward the Present School System and School Reorganization in a Rural South Dakota County, S.D.S.U., 1963, pp. 66-67.

literature reviewed regarding such shall be accomplished at a higher level of abstraction.

Religion as it is associated with liberal or conservative political attitudes was studied by Centers in 1951. His findings indicated that religious people are largely more conservative in their political attitudes than are individuals having little or no religious affiliation. The results using voting as a criterion of political attitude are paralleled by investigations using attitudinal scales. Such studies agree with others in finding religious people more conservative in attitudinal orientation.¹⁹

Kenkel in discussing Kurey's study of male attitudes toward pre-marital sexual relations demonstrates the effect of religion upon the relative frequency of pre-marital intercourse. Here the influence of religion is highly significant with devout protestants engaging in such behavior, considerably less (30 percent) than non devout protestants.²⁰

Durkheim's classic study of suicide provides a striking example of religion as it influences attitudes toward cohesion, which in turn influences behavioral manifestations. Through logical deduction, Durkheim demonstrates that suicide is lower among Catholics than among Protestants, because of stronger religion cohesion among the latter.

¹⁹Jahoda, and Warren, op. cit., pp. 105-109.

²⁰Kenkel, *The Family in Perspective*, Appleton Century Crofts, New York, 1966, pp. 277-278.

It is apparent that in order for solidarity to exist in a group, individuals of the group must first hold attitudes favorable toward cohesion. Their attitudes in this instance have their origin in religion.²¹

The next study to be considered is that of Adorno, et. al., (1950) on the authoritarian personality as it might be influenced by religion. In this study an attitude scale was administered to a random - stratified sample of individuals based upon religious preference. Individuals affiliated with a religious denomination were significantly more authoritarian and ethnocentric than individuals not affiliated with such. Generally, Catholics were found to be more authoritarian than Protestants although certain Protestant sects did score highly in this area.²²

Summary

Most studies reviewed indicated a significant relationship between religion and attitudes. Many indicated a strong influence of religion upon the actual actions and behavior of the individual. Durkheim especially brings forth this influence in his writings on suicide.

²¹Faris, R. Handbook of Modern Sociology, Rand McNally Corp., New York, 1965, pp. 589-590.

²²Jahoda and Warren, Attitudes, Penguin Books Ltd., Middlesex, England, 1966, pp. 100-103.

Proposition IV

Since religion appears to influence not only attitudes but also behavior, the following shall be stated as a general proposition:

Religion appears to influence attitudes and behavior.

Level of Living

Literature regarding level of living as it might be associated with attitudes toward environment is unavailable at this time. Most studies dealing with level of living as it influences various types of attitudes indicate association between the two variables. The favorability or unfavorability of attitudes, however, is usually dependent upon the issue at hand and how individuals at certain levels view the issue. One cannot blanketly state that because an individual has attained a certain level of living that he will hold highly favorable attitudes toward an issue.

Arbach and Marsh in 1956, studied farmer rationality as it related to economic reward, indicating that attitudes favorable toward rationality in business matters predispose the individual to act rationally. The following conclusions were drawn from their research:

- A) As farm size increased, farmer rationality also increased
- B) Age of farm operator was inversely associated with rationality
- C) The higher the level of living, the greater the rationality²³

²³Dean, A., Arbach A., and Marsh, P. "Some Factors Related to Rationality in Decision Making Among Farm Operators." Rural Sociology, Vol. 23, (June, 1958), p. 122.

Individual level of living appears significantly associated with attitude. Individuals having a lower level of living tend to act less rationally because of their smaller economic base and desire for immediate rather than deferred gratification.

Fliegel's study of attitudes toward farm practice adoption indicates that level of living is significantly associated with the adoption of farm practices.

"A multiple correlation analysis established that familism, contacts, information on farm matters, level of living and attitudes toward farm practices account for a significant proportion of variation in adoption of farm practices with other independent variables taken into account."²⁴

In a 1968 study of farmers, adoption of innovative practices factorially analyzed several independent variables possibly related to attitudes toward and eventual adoption of innovative farm practices. Using thurstone-certroid analysis techniques he found several variables directly related to adoption practices.²⁵

Summary

The previously cited research material appears to indicate association between the individuals' level of living and his resultant

²⁴Fliegel, F. "A Multiple Correlation Analysis of Factor Associated with Adoption of Farm Practices," Rural Sociology, Vol. 21, (September-December), 1956, p. 284.

²⁵Ibid., p. 291

attitudes to various phenomén for the most part people who possess a higher level of living tend to possess attitudes more favorable to change. Since level of living is generally highly correlated with education, one would expect individuals having a higher level of living to be more highly educated.

Logically reasoning from the above it would appear that such individuals have a greater sensitivity to advantages and disadvantages posed by certain phenomena. Should an innovation for instance be economically rewarding yet ecologically damaging, those individuals would be expected to weigh its advantages and disadvantages and ultimately by virtue of resultant attitudes, select that which possesses the greater comparative advantage.

Proposition V

From the above discussion and reasoning the following general proposition shall be posited:

An individual's level of living appears to be associated with his attitudes toward change.

Organizational Participation

The individual participates in many types of organizations through the course of his life. Most of us have our greatest frequency of association with one major organization - our place of work or business. Such organizations are usually formal in nature and have an established heirarchy of authority and responsibility. Membership is usually based upon necessity (economic) and therefore cannot be designated as voluntary.

For the most part the individual tends to assume dominant attitudes as he perceives them evidenced by this type of organization. In juxtaposition to the work-related organization is the voluntary association.²⁶

This term usually refers to those organizations that people belong to part time and without pay - such as clubs, lodges, agencies and the like.

Since American society is differentiated, people seek associations and organizations tend to attract people of similar backgrounds, large numbers of associations exist.²⁷ Attitudes of individuals in voluntary associations tend to reflect the dominant attitude of the organization. People in this respect possess attitudes influenced in large part by their voluntary associations.

In effect, organizations act as an agent of continuing socialization in the life of the individual.²⁸ Organizations therefore may inculcate new and modify the existing attitudes held by an individual.

Aurbach and Marsh found in their study of farm practice adoption that individuals actively participating in organizations were more frequent adopters of new methods based upon their organizations' acceptance of such methods.²⁹

²⁶Sills, D. L. The Volunteers, Free Press, N. Y., 1957, p. 75.

²⁷Sills, Ibid., pp. 74-77.

²⁸Olsen, Marvin, The Process of Social Organization, Holt, Rinehart, Winston, New York, 1968, pp. 118-122.

²⁹Dean, A. Aurbach, A., and Marsh, C. P. "Some Factors related to Rationality in Decision Making Among Farm Operators," Rural Sociology, Vol. 23, (June, 1958), pp. 122-124.

Summary

From the previous material it is indicated that: A) individuals tend to join organizations which are consistent with their beliefs, B) organizations tend to attract individuals whose attitudinal orientations are compatible with the goals of the organization, C) the individuals process of socialization is continued and possibly altered within the organizational structure.

Proposition VI

In consideration of the preceeding the following is stated as a general proposition:

Organizational participation appears to influence individual's attitudes.

Sex

A search of the literature has not revealed any research performed in the area of sex and related attitudes toward environment. The following shall then review the male - female sex roles and possible resultant attitudes.

All societies make a basic differentiation between the rights and duties of the sexes. In many societies males are assigned those tasks which call for physical vigor and usually is designed as the individual responsible for the sustenance and economic support of the family unit.³⁰ Men in contemporary American society tend to hold favorable attitudes toward positive economic influences. Most males welcome

³⁰Kenkel, William F. The Family in Perspective, Appleton Century Crofts, Inc., New York, N. Y., 1966, pp. 463-466.

economic development as it often insures their position as the provider for their family unit. A most demoralizing experience for the average American male is unemployment.

Logically reasoning from the above, the assumption might be made that males, more often than females, welcome economic development. Masculinity has traditionally stood for strength and vigor and the ability to meet the outside world head-on and to deal with it effectively. This aspect of the masculine role probably receives the most emphasis in our society.³¹

Although society's view of the female is changing, she has long been relegated to a role considered subservient to the male. Although females who are career oriented often possess attitudes similar to those of males regarding economic development, they generally are not as concerned with the strictly economic as is the male. This might possibly be due to the fact that the female is generally not the sole supporter of a family unit.

Summary

Males, from what has been previously stated, generally are more economically oriented than are females. Males, because of their assigned roles often covet economic development whereas females because of their roles are less pressured to do so.

³¹Kenkel, Ibid, p. 464.

Proposition VII

There appears to be a relationship between an individual's sex and resultant attitudes toward economic development.

Length of Residence

Most studies performed in the area of community development or community analysis indicate that those individuals who have lived in an area for a longer period of time tend to be resistant to change in that geographic area.

Vidich and Bersman in Small Town in Mass Society indicate that "natives" and "long time" residents were skeptical of any change within their community especially change initiated by "outsiders." Because the community held an attitude of "hands off" with respect to outsiders, it had remained relatively much the same as it had been 50 years previously.

Long time town residents had blocked virtually all changes attempted in the town. Developers had attempted to introduce modern merchandising methods and supermarkets into the community's economy, but received little, if any, favorable results.³²

Such action by the community is certainly reflective of negative attitudes toward change on the part of long time residents of Springdale. The authors indicate that individuals new to the town and those having lived there for short periods of time favored economic and social innovation.

³²Vidich, A., and Bersman J. Small Town in Mass Society, Anchor Books, Doubleday and Co., New York, N. Y., 1960, pp. 23-29.

Warner and Low in Yankee City describe in detail the manner in which the city's mainstay, a shoe factory, undergoes extensive change and is eventually lost to the community.

During the earlier days of the town, most industry was owned by people who had resided in Yankee City for longer periods of time. Because of their resistance to change and negative attitudes toward change of any sort, the industry and the town remained virtually unchanged for 30 years. As younger individuals and outsiders began to infiltrate the managerial hierarchy of the shoe industry, extensive change took place. For the most part, the agents of change were not long time residents or natives of the community.

With change, came absentee management and the eventual demise of the industry.³³ Here again the reader can easily detect a change oriented attitude evidenced by individuals having resided in the town for only a short period of time.

Other studies reviewed with respect to length of residence as it affects attitude toward change in towns appear to substantiate the existence of such a relationship.

Summary

From studies reviewed it appears logical to infer a relationship between length of residence and attitudes toward change.

³³Warren, R., ed. Perspectives on the American Community, Rand McNally Corp., New York, N. Y., 1966, pp. 214-227.

Proposition VIII

There appears to exist a relationship between an individual's length of residence in a town and his resultant attitudes toward change.

Family Size

Here again, research regarding the influence of family size upon environmental attitude is unavailable. Literature review will then be accomplished at a higher level of abstraction.

Today, completed rural-farm families are about one-third again as large as urban families. As has been apparent through about a fifty-year period, the completed rural non-farm family size falls between that of the urban and of the farm.³⁴

Family size should influence attitude toward economic development inasmuch as the head of the household must consider such as a possible contribution to the economic well-being of the family unit. Heads of smaller families generally can find suitable employment to sustain family members.

The head of a larger family must generally consider the economics of their support. He therefore should evidence attitudes more highly favorable toward industrialization.

Industrialization will have a lesser impact upon the large rural-farm family as children in such families are generally productive members of the family farming unit.

³⁴Kenkel, op. cit., pp. 211-213.

Summary

Most literature indicates that with regard to economic sustenance of a family, heads of larger families must be concerned to a greater extent with employment and therefore economic development. In light of family support the head of a large rural-farm family is in a more favorable position as children are a valuable source of farm labor.

Proposition IX

Literature as cited above shall serve as the basis for the formulation of the following:

Family size appears to influence economic attitude.

Community Identification

This variable appears to be closely aligned with that of organizational participation. In the event an individual identifies with a specific community he will then tend to assume the attitudes of the community at large with respect to certain issues.

Hovland, et. al., in a study dealing with organizational and community socialization as both are concerned with the process of communication and resultant attitudinal development concluded that all are significantly associated with attitudes held by individuals.

In his study he found that group conformity motives influence the individual and his assumption of attitudes of his peer group. Similar groups in a community generally hold similar attitudes. He

further infers that individuals identifying with certain communities tend to possess attitudes similar to the community at large.³⁵

Vidich and Bersman in Small Town in Mass Society, indicate that residents of Springdale tend to "think alike". The town therefore is regarded as more or less a large family and because of this phenomenon, a vehicle of socialization for its inhabitants. The authors allude to residents of surrounding communities as possessing attitudes different from those of Springdale residents.³⁶

Using a reference group theoretical framework it is also conceivable that an individual living in a rural farm area might well identify with a rural city and utilize this as a possible point of behavioral and attitudinal orientation. Such "anticipatory socialization" is considered highly significant among those adhering to a reference group theoretical orientation.

Summary

Membership in and identification with a community usually indicates that an individual will possess attitudinal orientations similar to those of the total community. It is therefore possible to infer that community identification influences attitudinal orientation.

³⁵Houland, E. T., et. al. Community and Persuasion, Yale University Press, 1953, pp. 101-106.

³⁶Vidich A., and Bersman J. Small Town in Mass Society, Anchor Books, Doubleday and Co. Inc., Garden City, N. Y., 1960, pp. 20-33.

Proposition X

From the above discussion and reasoning it appears that:

Community identification influences attitudinal orientation.

Review

The previous material constitutes a review of literature pertinent to selected independent variables as they might possibly be associated with the dependent variable of the dissertation - attitude toward environment.

Where possible such review has been conducted at the lowest level of abstraction. In such cases where literature has been unavailable at a lower level of abstraction it has been necessary to conduct review at a higher level.

The general propositions stated at the completion of each subsection will be utilized later to aid in the formulation of research hypotheses.

PART II: A SOCIAL PSYCHOLOGICAL PORTRAIT OF THE RURAL COMMUNITY

Introduction

To supplement previous information, this area of the review of literature shall attempt to present a synopsis of the varied characteristics of the rural community which for the purpose of definition shall be regarded as an agriculturally oriented community in which primary

relationships predominate. The following shall briefly and in general fashion describe a rural community.

By definition, rural communities are usually located somewhat off the "beaten path", and are generally agricultural in their economic orientation.

Because rural communities are smaller in size than urban centers, the residents often possess different attitudes toward their community. Vidich and Bensman in Small Town in Mass Society succinctly summarize the rural "ethos" in a series of quotations by respondents in their study examples:

- A) "Our neighbors are our friends"
- B) "Most of the people here are good folks"
- C) "We're all equal"
- D) "We're all essentially in the same class"³⁷

Because of this sense of equality, friendship and community identification rural residents often possess attitudes crucial of crisis. Vidich and Bensman render the following account of such attitudes:

- A) "Cities breed corruption"
- B) "Cities are unwholesome"
- C) "Urban politicians and labor leaders are corrupt"
- D) "City universities and churches are atheistic and secular"³⁸

³⁷Vidich A., and Bensman J. Small Town in Mass Society, Anchor Books, Doubleday and Co. Inc., Garden City, N. Y., 1960, pp. 24-35.

³⁸Ibid., pp. 33-34.

From the above there appears to be a strong sense of mechanical solidarity within the rural community. Social control is exercised more on a personal basis and often takes the form of gossip.

Rural townspeople are considerably more active in their political, educational, religious and economic institutions than are their city cousins.

By and large, the rural family is a more closely knit unit than is the urban family. Members of the rural family tend more to participate in events as a unit whereas generally members of city family units tend toward "going their separate ways."

Religion also is a more integral part of life in the rural community than in the urban. The local church is most often the nucleus of community activity; and participation in church sponsored or related functions is usually higher.

Although social stratification does exist in the rural community, class lines are not as firm as in the city. The so-called upper class is usually constituted of those individuals considered "town fathers" and is generally not based upon economic remuneration. The middle class usually includes the remainder of the townspeople although there does exist a lower class usually constituted of marginal farmers and more poorly paid operatives. Class structure rather is perhaps based upon participation in community organizations, with those participating considering themselves equal."³⁹

³⁹Ibid., pp. 33-36.

Summary

Life in the rural community appears to be considerably more harmonious and generally more relaxed than life in the cities. However, Larson and Rogers maintain that the effects of mass media and ease of transportation might cause rural areas to exhibit phenomena more characteristic of cities.⁴⁰

PART III: THE EFFECT OF INDUSTRIALIZATION ON NEARBY AREAS

The impact of change: Most sociologists dealing with change in rural areas have hypothesized that change in any one part of rural society will generate effects in other parts of the society. This structural-functional theoretical framework has long been popular among researchers; however, in rural society this does not appear to hold true.

Ford and Sutton in a study dealing with the impact of change on rural communities reviewed 38 studies dealing with this theoretical framework to find that:

"Relatively few studies lend strong support to the widely held view that change in one part of a community system inevitably affects all other parts."⁴¹

⁴⁰Larson, O., and Rogers, E. "Rural Society in Transition", Our Changing Rural Society, Iowa State University Press, Ames, Iowa, 1964, pp. 39-67.

⁴¹Ford, T. R., and Sutton, J. R. Ibid., pp. 198-229.

It is with this in mind that results of studies conducted in the area of industrialization and its effect upon the rural community shall be presented.

The Air Force Experience

Due to the onset of the Korean conflict, Congress and the President in October of 1950 issued an order to reactivate Sampson Air Force Base in Seneca County, New York. The move was promulgated by a shortage of personnel training facilities, the Air Force having only one other at this time.

At the time of reactivation, Seneca was a rural agriculturally oriented county with a total population of 25,732. It's largest city, Geneva, comprised the bulk of the county population having a total population of 16,752.⁴²

The Air Training command was authorized to spend slightly over four million dollars to rehabilitate the facility which would accommodate a total contingent of 37,083 officers and men.⁴³ The construction work force steadily increased from a total of 15 on January 3, 1950 to a peak of 3,900 in April of 1951. The payment of salaries and purchase of construction material brought over two million dollars into the county over a one-year period. The payroll increased subsequently to almost seven million dollars.

⁴²Church, A. E. "Sampson: A Study of Growth and Impact of a Military Facility", The Impact of Large Installations on Nearby Areas; Sage Publications Inc., Beverly Hills, California, 1965, pp. 375-384.

⁴³Ibid., p. 399.

In light of that previously mentioned, one would expect a tremendous change in the overall operation and conduct of the county and especially the small city of Geneva.

In 1956, Sampson Air Force Base was also ordered to deactivate. At the time of its closing the Finger Lakes area lost two of its major employers, the Market Basket Food Corporation - employing 200, and Patent Cereals Company - employing 300. These two industries had since approximately 1914 provided a stable source of employment.

The effect of Sampson's closing was temporarily softened, as there was much construction taking place in the area at that time. Two schools, costing a total of 3 million and expansion construction of the Seneca ordinance depot totaling 7 million was being conducted.

Despite the above construction, commerce in Geneva was hurt by the base closing. Novelty stores began to disappear, one movie theater closed and another eliminated several daily showings. Food sales dropped approximately 25 percent.⁴⁴ Geneva Airport was also closed.

The closing brought a proverbial "rude awakening." Geneva, which had previously made no attempt to covet new industry, began to avidly solicit potential customers. Eventually efforts to do so were futile, and industry tended to shy away from the area.

Subsequently, the remaining buildings at the site of the military complex were utilized as a city park, office space for the general services administration, and as a rehabilitation camp for juvenile

⁴⁴Ibid., p. 406.

delinquents. Base housing units, built with an anticipated life expectancy of 10 years, deteriorated to the state of slums.

Summary

- A) Population in the affected area remained relatively stable during Air Force occupancy of the facility but began to decline upon deactivation. No drastic decline is noted in the study.
- B) Wages in the area, which had been driven up by higher federal scales, remained constant upon the facilities deactivation.
- C) The departure of the military, the lack of planning for diversified industry and the lack of foresight of individuals engaged in housing activities created a state of overdueling and/or slums in the area.
- D) Schools remained largely unaffected because of an increased school load by natives of the area.
- E) Transportation facilities returned to their former state. The airport was closed, rail service was out, and bus transportation drastically reduced.⁴⁵

In consideration of the above it might be stated that the deactivation of such a facility certainly bore grave consequences for the area.

⁴⁵Ibid., pp. 426-429.

The Illinois Experience - Before Industrialization

The following summary will attempt to describe the impact of construction of a large steel processing industry on nearby rural areas, as studied by Summers, et. al.

During the spring of 1965, Jones-Laughlin Steel Corporation (J & L) announced plans for development of a major production complex in the Hennepin area of Putnam County, Illinois. Phase I of building was completed in 1967 and in 1968 the plant was in production with a payroll of approximately 600 employees.⁴⁶ J & L also purchased several thousand acres of adjoining land which it plans to lease to steel customers for associated plant sites.

Putnam County, and the adjacent area, is primarily an agricultural region in North Central Illinois. The influence of the plant is expected to extend beyond Putnam County into adjacent portions of four other contiguous counties. It is additionally expected that commercial and other industrial complexes, to support the plant and its labor force, will emerge.

Using a structural, functional and theoretical framework, Summers, et. al., in 1969 studied the affected area to determine the impact of the plants, construction and operation. The study was longitudinal in design. This, the Benchmark portion, utilized Putnam County as the experimental and a portion of Imquoid County as the control group.

⁴⁶Summers, G. F., et. al. Before Industrializations a Rural Social System Base Study; University of Illinois Agricultural Experiment Station, Bulletin No. 736, Urbana, Illinois, 1969, p. 3.

The portion of Imquoid County selected as the control group was equidistant from Chicago and had similar population and transportation characteristics.

The scientists hypothesized that the two areas of study were well enough integrated to utilize structural-functionalism and expected significant change within the control group.

Findings

In this Benchmark study, the researchers arrived at the conclusion that major and dramatic changes with respect to education and government had not taken place between the experimental and control areas. This was largely due to the fact that population had not changed significantly due to plant construction and operation.

Although no final data were available, the authors expected the most significant change would take place in the economic system of the control county, and more specifically in the manufacturing sector. Putnam County had previously no actual manufacturing center as such. The authors also anticipated substantial change in the financial and transportation sectors with a 2-year period.⁴⁷

Research indicated that the agricultural sector would remain virtually unchanged by industrialization with the possible exception of it's proportionate importance for the economic system as a whole.

⁴⁷Ibid., pp. 96-97.

An increase in capital as opposed to labor, and intensive agriculture was anticipated although such might not be significantly associated with industrialization.

The researchers leave several theoretical questions unanswered and arrive at a final point of conjecture, indicating that industrialization and changes in the economic sub-system of the total social system may have negligible effects on other systems unless it can alter the demographic and ecological environment which conditions the development of the system as a whole.⁴⁸

Conclusions

Based upon the previous review of literature relative to the association between selected independent variables and the dependent variable of attitude toward environment, a theoretical framework based upon a reference group orientation shall be utilized.

This choice was promulgated by the above in conjunction with research reviewed relative to the impact of industrialization on nearby areas.

⁴⁸Ibid., pp. 96-97.

CHAPTER IV

THEORETICAL FRAMEWORK

Introduction

The previous review of literature seems to suggest the possibility of utilization of a reference group theoretical orientation as the framework for this dissertation. Other theoretical orientations such as structural-functionalism, do not appear to be compatible (see review of literature for discussion), with the stated objectives of the study.

To understand what a man does we must have some appreciation of his definition of the situation, which requires knowing something of what he takes for granted. This is exceptionally true in a pluralistic society, where different people approach the same situation from diverse standpoints and where the same individual utilizes dissimilar perspectives in different transactions.

The concept of "reference group" has long been central in interactionist theory although it did not gain currency among social psychologists and sociologists until Herbert Hyman used the term in a study published in 1942.¹ It refers to the sources of values selected by an individual for the guidance of his behavior, especially in cases where a choice has to be made. Reference groups may be groups of which the individual is a member, but sometimes they are not. In most cases,

¹Arnold M. Rose, Human Behavior and Social Processes. Boston: Houghton Mifflin Company, 1962, p. 128.

they provide direction for the behavior of the individual concerned. Reference groups may also negatively guide behavior, rather than serve as a positive orientation.

The term "Sociological Theory" has been widely used to refer to the products of several related but yet individually distinct activities of so-called social theorists.²

With this in mind, reference group theory shall be defined utilizing a Mertonian framework. According to Merton, sociological theory is often confused with the following:

- a. Methodology
- b. General Sociological Orientation
- c. Analysis of Sociological Concepts
- d. Post-Factum Sociological Interpretations
- e. Empirical Generalizations in Sociology

A sociological theory, according to Merton, must combine and interrelate the above concepts in logical fashion and afford a consistent explanation of a phenomenon, to include prediction. As an example of this Merton cites Durkheim's Theory of Suicide, which logically interrelates social cohesion with religiosity and suicide.

Methodology is distinct from sociological theory in that it prescribes techniques for testing hypotheses and is not concerned with the theory utilized to derive them.

²Merton, R. K., Social Theory and Social Structure, The Free Press, New York, New York, 1968, p. 140.

³Ibid., pp. 141-142.

General sociological orientations are usually broad postulates which indicate types of variables to be taken into account rather than specifying determinate relationships between particular variables.⁴ They provide general contexts for inquiry and facilitate the process of arriving at determinate hypotheses. Reference group theory, as it is called, falls under the purview of such general sociological orientations. Although the concept does not express determinate relationships, per se, it provides a theoretical framework for the logical deduction of propositions and formulation of research hypotheses.

Reference group theory is distinct from the analysis of sociological concepts in that it utilizes such to construct a theoretical scheme - it is therefore more abstract in nature. It is also distinct from isolated empirical generalizations in that it utilizes such at a higher level of abstraction to serve as indicants of possible association.⁵

This typical orientation has often been labeled "Reference Group Theory". Although not a scientific theory in nature, it serves as a guideline of scientific analysis and when used as such in the text of this chapter shall appear as: "Reference Group Theory". Because this Orientation always deals with groups and group related behavior manifestations, it logically then falls under the purview of group and collective behavior.

⁴Merton, Ibid., pp. 142-143.

⁵Ibid., pp. 147-149.

Scope of Orientation

Since Hyman first introduced the concept of "Reference Group Theory" in a 1942 publication it has been variously utilized by social scientists to analyze group behavior in about all fields of endeavor. Hyman and Singer in the preface of their work, Readings in Reference Group Theory and Research, state the following as a potential danger in the use of Reference Group Orientation:

"Fifteen years ago Muzafer Sherif warned that "Reference Group Theory" was in danger of becoming a magic term to explain anything and everything concerning group relations."⁶

Utilization. It is quite evident from only a brief review of current literature that Reference Group Theory has assumed the role of a most universal explanation. One can see its use in sociological studies of just about anything, ranging from attitude surveys to actual participation in criminal acts. It apparently has well served the contemporary social scientist as a quick rather logical means to an end.

Areas of use. Aside from its almost universal application, Reference Group Theory does have a rightful position as a theoretical orientation. Because of its social-psychological values, it is well suited to analysis of most pluralistic behavior. Although not a strictly scientific "theory" in its own right, Reference Group Orientation may provide considerable insight into many little studied areas.

⁶Hubert H. Hyman and E. Singer, Readings in Reference Group Theory and Research. New York: Free Press, 1968, p. vii.

Relation to sociology. Due to its group centered behavioral orientation, Reference Group Theory is germane to the discipline of sociology. For many years sociologists have been engaged in encyclopedic endeavors to explain mans social behavior.⁷ Certainly here Reference Group Theory merits serious consideration.

Sociologists, social psychologists and cultural anthropologists have operated on the fundamental principle that an individual's attitudes and conduct may be shaped by a group in which he holds membership and that self-appraisal and correlative feelings, along with behavior flow, from the individual's location in a particular group within a society.⁸ Men, then, do act within a frame of reference in which often their referent group plays a dominant role in molding and shaping their actions.

Within the discipline of sociology groups have long been a major perspective of analysis. Many social scientists regard the group as a microcism of the larger society and many valuable conclusions have been drawn from group analysis. (Conclusions to be discussed later).

Anticipatory Socialization. Although an individual may be an active participant in a membership group, this does not necessarily mean that the membership group as such serves as his referent group. The individual may in fact reflect the norms and values of one group

⁷C. W. Mills, The Sociological Imagination. New York: Oxford University Press, 1959, pp. 22-23.

⁸Op. Cit., p. 3.

and adopt those of another of which he is not a member. When such a phenomenon occurs it is often known as Anticipatory Socialization.

An individual, by either desiring membership in a certain group, or by voluntarily adopting that group's values and norms may actually behave as would a member of the group. He is then in many respects, socialized within the context of that group's orientation and it becomes a reference group for him.

Normative Reference Groups. Similar to anticipatory socialization, is the concept of "Normative Reference Group." Here the individual in an almost obsessive manner adheres to the norms of a group of which he may or may not be a member. For example, most individuals abide by the norms and value structures of their family of orientation. That is, most conform to the values of this group as a point of reference in conducting their day-to-day behavior. The family then serves as both a Normative Reference Group and as a Membership Group.

Negative Reference Groups. Many individuals also are guided by the standards and values of a particular membership group to which they refer for their normative orientation. Many so-called "juvenile delinquents" adopt certain norms and values of peer groups in which they are members. Through this process the individual re-orientes himself away from those cherished values of the larger society. Because of the possibly more permissive orientation of his peer group, an individual might find the task of eliminating guilty feelings considerably easier,

and possibly engage in the commission of criminal acts.⁹ The concept of normative reference groups then is a relatively useful explanation of certain types of behavior.

Concept of reference group. A reference group quite simply is that body or collection of norms, values and standards to which the individual refers himself in guiding his behavior. That men act in a social frame of reference yielded by the groups of which they are part is a notion undoubtedly ancient.¹⁰

The evidence in support of such statements and principles is quite abundant but at times our faith often becomes shaky in the face of contradictory examples: The renegade Catholic and upper-class person who turns radical, although apparently acting contrary to a reference group perspective, are, in actuality, following the dictates of a perceived reference group.

The fact that men shape their attitudes by referring themselves to groups other than their own is a most significant contribution of "Reference Group Theory." It is possible then to determine which of a multitude of group memberships and multitude statuses is governant over the individual; which weights best represent their respective contributions.

⁹Savitz, Dilemmas in Criminology. New York: Prentice Hall, 1970, pp. 32-36.

¹⁰Rossi, Merton, "Interaction," op. cit., p. 3.

History of the Concept

As previously stated, the term was first used by Hyman, who elaborated the concept and explored some of its properties in an inquiry in 1942 into The Psychology of Status. To understand the way individuals ranked themselves in terms of their choice of a social framework for comparison, he first explored by interviewing the reference groups and reference individuals that subjects employed and some of the dynamics underlying such selection, and then determined the effects of the particular reference groups on self-appraisal by experimental manipulations. At about the same time, Newcomb, searching to understand processes of attitude change, or lack of change, among individuals all of whom had prolonged membership in Bennington College, explored systematically by interview and repeated testing the various ways in which they related themselves to the Bennington community--in other words, chose it as a reference group.¹¹ These first systematic studies by social psychologists in comparative and normative reference group processes respectively (to use the distinction later developed by Kelley) stimulated no one but a few other social psychologists, notably, the Hartleys and Sherif, to continue research on reference groups. Sherif emphasized reference groups in his 1948 Outline of Social Psychology, which included a summary by Newcomb of his Bennington study, rephrased in terms of the explicit concept reference group.

¹¹T. M. Newcomb, "Attitude Development as a Function of Reference Groups." Op. cit., pp. 354-76.

The concept had clarified for Newcomb various paradoxical findings. Similarly, Stouffer and his associates were led in their studies of The American Soldier to the concept of relative deprivation, a close cousin to the concept of comparative reference group, as they confronted the apparent contradictions between feelings of satisfaction or deprivation and the objective situation among groups of soldiers. They then invoked the interpretive principle that the soldier's sense of deprivation was not dependent on an absolute level, but was relative to the perceived level in the groups with which he compared himself.¹²

These ideas and concepts, however, had little prominence until 1950, when Merton and Rossi synthesized and presented in systematic form their "Contributions to the Theory of Reference Group Behavior."¹³

In the distant past, one can find precursors of the ideas implicit in Reference Group Theory. Summer's 1906 idea of in-groups and out-groups is a distinct relation; Cooley's 1902 discussion of selective affinity to groups outside of one's immediate environment is an even earlier and closer relative: "...the one who seems to be out of step with the procession is really keeping time to another music." As Thoreau said, "He hears a different drummer.... Environment, in the sense of social influence actually at work, is far from the definite and obvious thing it is often assumed to be.... The group to which

¹²W. G. Runciman, "Problems of Research on Relative Deprivation." Ibid., pp. 72-74.

¹³R. Merton and A. Rossi, "Contribution to Theory of Deprivation." Ibid., p. 29.

we give allegiance and to whose standards we try to conform is determined by our own selective affinity, choosing among all the personal influences accessible to us." His notion of imaginary conversation with an "interlocutor" anticipates the concept of reference individual and has inspired recent research that applies reference group concepts to mass communication. And his remark that "people differ much in the vividness of their imaginative sociability" is suggestive of later findings on individual differences in the use of multiple reference groups. Earlier yet, in 1890, William James, in his account of the "social self", suggested that our potential social self was developed and inwardly strengthened by thoughts of remote groups and individuals who functioned as normative points of reference. But these early glimmerings did not lead to the elaboration of the concept or its exploration by systematic research.¹⁴

Since 1950 the concept has achieved, in Turner's phrase, "meteoric prominence" and has figured in so many writings that the more recent history of its use cannot be accomplished in a brief review. The concept appears in studies performed in Australia, Israel and India; in studies of mental illness, formal organization, marketing and public relations, mass communication, acculturation, political behavior, consumer behavior, labor relations, and juvenile delinquency, as well as to opinion formation. It should also be noted that despite the general flowering, some branches have not flourished. If we take as a

¹⁴Ibid., p. 5.

comprehensive outline Merton's formulation; "Reference Group Theory aims to systematize the determinants and consequences of those processes of evaluation and self-appraisal in which the individual takes the values or standards of other individuals and groups as a...frame of reference, "the deficiencies as well as the accomplishments will become apparent."¹⁵

Clarification of Concepts

Kelley's distinction between comparative and normative reference groups, corresponding to the two functions of reference groups as standards of comparison for self-appraisal or as the source of the individual's normal attitudes, and values, is basic.¹⁶ These two types of reference groups are sometimes regarded as separate but equal in importance for study, having only the common property that the individual's choice of a point of reference is the key to understanding either the process of self-appraisal or the formation of attitudes. The two types, however, may not always be empirically distinct. Contained within the structure of norms in a group may be the directive that one should not compare himself with his betters, or look down on his inferiors, or that they did not employ any comparative groups whatsoever, because of ideological distaste, and the political attitudes. Given the possible interdependence of the two types of processes, it is all the more strange that although the study of the normative reference

¹⁵E. L. and R. Hartley, Fundamentals of Sociological Psychology. New York: Alfred A. Knopf, 1952, p. 35.

¹⁶Ibid., p. 47.

group has been cultivated, that of the comparative reference group has been neglected. The paths that Hyman, the Hartleys, Stouffer, and Merton took are now only byways, trodden by occasional investigators.¹⁷

The equally basic distinction between reference individuals and reference groups has been neglected despite the emphasis on the reference individual as a point of social comparison in the early work and the obvious connection to such a prestigious concept as role-model. The parenthetical remark by Newcomb that a membership group may be a potent normative reference group "(particularly as symbolized by leaders...)" strongly suggests the role of the reference individual as the carrier of the reference group's norms, but it appears to have been lost inside the parenthesis. Merton incorporated into his original formulation both concepts, and in a subsequent essay gave greater prominence to the "reference individual". Sherif described that glorified variety of reference individual to which he gave the apt title, the "reference idol".¹⁸

The reference group concept reminds us that individuals may orient themselves to groups other than their own, not merely to their membership groups, and thereby explains why the attitudes and behavior of individuals may deviate from what would be predicted on the basis of their group membership. Thus a theory of the group determination of

¹⁷Ibid., p. 37.

¹⁸M. Sherif, "The Concept of Reference Groups in Human Relations". Hyman and Singer, Readings in Reference Group Theory and Research. New York: Free Press, 1968, pp. 84-94.

attitude has been properly enlarged by the concept of reference group. Parallel to a theory of group influences on attitude, a recent fruitful development of theory and research has dealt with social influences of an interpersonal sort mediated through direct interaction and communication, and has become known to us under the headings of "opinion leadership," "the influential," and "personal influence." But this latter theory would take on enlarged significance by some stress on "reference individuals" as sources of influence. Just as reference group reminds us of the influence of nonmembership groups, the concept of reference individual would remind us that there are influentials, or opinion leaders, with whom we are not in direct social relations. We model ourselves not only on those who are near but on those who are far away. Certainly the emphasis in recent research on intimates as sources of influence is an understandable and wholesome reaction to the earlier emphasis of hierarchical and feudal types of influence from superiors, but perhaps the balance has swung too far. The point to be stressed is that the links in the interpersonal chain do not have to be forged exclusively via direct social relations.

For the study of normative reference groups, Newcomb's distinction between the positive and negative type reminds us that individuals may form their attitudes in opposition to the norms of a group as well as in accordance with them. The concept of negative reference groups helps us understand not only the affective tone and content of an individual's attitude, but also such formal features as the congruence and organization of his attitudes. Clearly there are some instances in social

life where to oppose the norms of a particular group--for example, the Republican Party in the United States--is to be thrown into the arms of its opposite, the Democratic Party. But there are many other instances where social relations between groups are not patterned in terms of polar opposites. Thus, to regard one's parents or community as a negative reference group may provide no other directive to the individual than to choose from among the norms of the myriad groups available. Individuals who form a constellation of attitudes under such conditions may well show the consequences in terms of diffuseness, lack of crystallization, inconsistency, and so on. But this remains a hypotheses to be tested as investigators pursue Newcomb's distinction.¹⁹

The concept referent power, employed by French and Raven, suggests many fundamentals of normative reference group processes. The power of a nonmembership reference group inheres essentially in the fact that the individual by his sheer identification with the group willingly accepts what he perceives to be its norms. By contrast, membership groups often have the power, even when the individual does not take them as reference groups, to exact conformity in behavior through brutish means or rewards and to induce attitudes through prolonged doses of socialization. Certainly, when there is no bond of identification, their influence may be attenuated, and the concept of reference group reminds

¹⁹T. Newcomb, "Attitude Development as a Function of Reference Groups". Ibid., p. 374.

us that the psychological equipment of an individual can provide some escape from victimization by a membership group.²⁰

From these distinctions flows the hypothesis that the attitude held tends to reflect the reference group, whereas the attitude expressed tends to reflect the membership group. It is only when the individual reveals his nonconformity that he is in danger of sanctions from his membership group. Thus, the membership group and the reference group normally divide the realm, the former holding sway over the sphere of expression and the latter over the sphere of private thoughts. More refined hypotheses follow. As a membership group develops apparatus and institutions that threaten privacy, even the attitudes that are formed and then held in mind may come under its sway, since the truly private sphere shrinks. Conformity to the membership group then becomes more comprehensive. When nonconformity is expressed, it, no doubt, requires that the person have some reference group or individual strongly in mind to steel his resolve. William James put it very well:

"When for motives of honor and conscience I brave the condemnation of my own family, club, and 'set'...I am always inwardly strengthened in my course and steeled against the loss of my actual social self by the thought of other and better possible social judges than those whose verdict goes against me now. The ideal social self which I thus seek in appealing to their decision may be very remote...Yet still the emotion that beckons me on is indubitably the pursuit of an ideal social self, or a self that is at least worthy of approving recognition by the highest possible judging companion, if such companion there be...All progress in the social self is the substitution of higher tribunals for lower."²¹

²⁰Ibid., p. 374.

²¹J. French and B. Raven. "Bases of Social Power." Dorwin, Cart, Winnet, Editors, Studies in Social Policy. Michigan: Free Press, 1959, pp. 150-67.

On a miniature scale, the support of reference groups for nonconformity is revealed in the selection from the studies of the Encampment for Citizenship, where observations were made of youth as they moved back and forth between the larger society and a special community whose norms were in conflict. And on a more extended time scale, these processes are examined in Newcomb's follow-up study of Bennington graduates twenty-five years removed from its influence.

Anticipatory Socialization. Merton's concept of anticipatory socialization is essential to this discussion. Individuals may take as a reference group, a nonmembership group to which they aspire to belong, and begin to socialize themselves to what they perceive to be its norms before they are overexposed to its influence. The power of some reference groups is inherent in the possibility that they will ultimately be membership groups--at least such is the belief of the aspirant--and therefore can exact some conformity as the price of admission or of more comfortable passage into their ranks. Eulau advanced and then tested twice an ingenious hypothesis bearing upon this discussion. He reasoned that anticipatory socialization may be an effective means for learning attitudes, but not conduct, since the aspirant will have had little real opportunity to practice the skills required and to be taught the correct performance of the role.

Basic to Reference Group Theory is the fact that individuals often have multiple reference groups. Certainly, there are some individuals who have limited capacity to use many reference groups, who lack rich "Imaginative Sociability." Others however, in appraising the many

facets of the self, employ various reference groups, each specialized as a point of comparison for one particular dimension. In forming their total constellation of attitudes, several reference groups may be employed, each accorded a limited jurisdiction over some specialized attitude sphere. Studies of normative reference groups have found differences in the legitimacy that individuals accord to groups promulgating norms in various spheres. There are also instances where multiple reference groups impinge and then they may either reinforce the same outcome or produce conflicting consequences for the individual.

Over the life span of any person there will have been a multiplicity of reference groups, specialized less by sphere than by the life-segment to which they were keyed. Some are long departed, but since reference groups are represented by the symbolic processes of the individual old reference groups may be carried over in memory. Recent groups may also be cast out of mind in the zealous adoption of a still newer reference group. The relations of multiple reference groups within a sequence suggest many fascinating problems that tie into the processes of social mobility. Discussions of social mobility often assume that the past and future reference groups conflict, since the individual presumably wishes to break his ties to the old, inferior group. Litwak, however, presents an interesting reformulation, using the concept of the stepping-stone reference orientation. In a situation characterized by ordered change, "where integration into one group is considered to be a prerequisite for integration into a second group...it is possible for the individual to view both his current membership group and his future

group." Each group is valued by the individual as a stepping stone to help him in his advance.

Research and Theory on the Selection of Reference Groups

The concept reference group has always implied that one cannot make arbitrary assumptions about the groups to which an individual refers himself. Given the multiplicity of groups and the variability among individuals and situations, must we then, as a symposium put it in 1956, "determine which kinds of groups are likely to be referred to by which kinds of individuals under which kinds of circumstances in the process of making which decisions..."--over and over again?²² There will always be a large amount of empiricism needed, and the development of simple instruments to measure a person's reference groups is of great importance. But, fortunately, research has already established certain regularities in the choices individuals make and some major factors governing selection.

Theorizing about the choice of reference groups and reference individuals is often based on simple assumptions about motivation. The individual chooses a normative reference group so that in fantasy, or ultimately in fact, he can feel himself part of a more favored group. Thus anchored, he has a ready-made perspective to order the distressing complexities of the environment. For social comparisons, he chooses a group so as to enhance his self-regard or protect his ego. Certainly

²²Foundation for Research on Human Behavior, "Group Influence in Market and Public Relations. Michigan, p. 56.

in the search for reference groups, such fundamental strivings play an important part. The pleasure principle is at work, but so too is the reality principle.

Stouffer inferred that the more advantaged soldiers felt deprived because they chose to compare themselves with others who were even better off. It seems plausible that the institutional arrangements gave such sharp definition and prominence to certain groups that the soldier's attention was drawn to them as points of comparison.

Turner hypothesized that only those groups will be taken as points of comparison which are relevant to a particular aspect of self-appraisal--when a group's standing is so high or so low that it is not meaningful to the individual, it will not be used as a comparative reference group. The similarity principle Festinger derived in the "theory of social comparison processes," that an individual chooses others who are close to his level of ability, is congruent with Turner's relevance principle, as is Merton's hypotheses, based on findings in *The American Soldier*, that "some similarity in status attributes between the individual and the reference group must be perceived or imagined, in order for the comparison to occur at all." The Amba of East Africa dramatically illustrates that principle. They worked for Europeans for a much lower price than for employers from another tribe, and "are quite willing to explain this state of affairs. They say that a European is on a much higher social plane, and therefore comparisons are out of the question. Europeans are so wealthy that an increase in their wealth makes no difference in the..."standing" of the Amba relative to Europeans. Qualitative evidence in Hyman's interviews also suggested the

operation of the similarity principle, or what he called "affinity" in the choice of reference groups, but he observed instances where contrast in status make a reference group salient and likely to be chosen.²³

The principles of relevance and similarity still leave much room for the play of psychological factors. As Merton remarks, perceived similarity is what counts and there are many dimensions of similarity, in which direction will the individual turn then--toward relevant groups that are superior or inferior to him? Turner's college students seemed to compare themselves with higher reference groups, perhaps to their present discomfort, but because they were "future-oriented," desiring to surpass such groups in their future lives.

Patchen's study of industrial workers provides systematic evidence on the variables affecting the choice of a reference individual or reference group for economic comparisons and fundamentally clarifies the motivational assumptions of Reference Group Theory. Men often choose reference groups which increase their present sense of relative deprivation, not only because formal institutional arrangements force such groups into attention, but, as Patchen demonstrates, above them at the price of present dissatisfaction because they are laying a claim to a future when their status will be higher and their relative deprivation diminished.

²³Foundation for Research on Human Behavior, op. cit., p. 413, Ibid., p. 219.

Experimental research demonstrates that situational factors may heighten the salience of a membership group and increase the likelihood of its being used as a reference group whose perceived norms then affect some specific sphere. Whether such situational influences have enduring effects on the choice of normative reference groups remains unknown.

That normative reference groups are chosen in the spirit of identification perhaps also needs qualification. It may be true for many individuals seeking a source of norms, values, and attitudes, although the existence of negative reference groups obviously qualifies the proposition. Certainly the reference individual who is an idol or hero may be chosen with a sense of his distance and little feeling of identification. And what about the individual seeking a system of beliefs and knowledge? He may then choose his reference group in terms of its authority or expertness, and with the full awareness that he has no bond of identification. Systematic research on such determinants of choice does not exist, since the effects of reference groups on cognition have been neglected, to the detriment of an improved sociology of knowledge. Carlson, who demonstrated differences in the effectiveness with which rural Southern Negroes dealt with syphilitic infections, depending on their reference groups, and Beal and Rogers, who demonstrated that farmers who adopted better practices chose particular reference groups, illustrate the prospect for future research.²⁴

Ruth Hartley's work represents a unique program of systematic research on psychological factors that influence the selection of a

²⁴Ibid., p. 15.

membership group as a normative reference group. Using a large college community, she measured the degree to which students adopted their new community as a reference group, and correlated such individual differences with other characteristics. Taking on a new reference group is dependent on an acceptant personality pattern. A particular reference group is then likely to be chosen if it is seen as fulfilling personal needs, and if there is congruity between the individual's personal values and norms and the norms and values he perceives as characteristic of the group. Thus, some of the apparent effect of reference groups on the values of individuals may be spurious, since their values were prior in time and determined the choice of the reference group.²⁵

Measurement procedures. In this field measurement procedures range from arm chair philosophy to complex mathematical and statistical techniques. Reference groups have been measured by such simple techniques as predictive questions on subjective class identification.²⁶ Other simple questions on the importance of a series of groups have been used to predict individual attitudes.²⁷

Comparative reference groups, which people normally employ have been studied by the direct question method. This is the usual method in studies on personal satisfaction; and by application

²⁵R. Hartley, "Norm Compatibility, Norm Reference and Acceptance of New Reference Groups." Ibid., p. 238.

²⁶McDougall, An Introduction to Social Psychology. Boston: John Willey and Company, 1921, pp. 200-201.

²⁷H. Hyman, "Reflection of Reference Group." Public Opinion Quarterly, Vol. 24, 1960, pp. 383-96.

of Kuhn's "Who Am I" test which requires the individual to spontaneously define himself and his incorporation in various social categories.

Perception of reference group norms has been measured by having the subject estimate the opinion of various other groups or individuals, or indicate lack of awareness of any norm.²⁸

History of the Discipline

Introduction. Most writers who have treated the development of social and cultural phenomena and many who have been concerned with the development of the self have had something to say about groups. They found that in some ways the origins of the phenomena they were seeking could be seen on the small group level, or that the comparison of small with large groups gave them a more generalized perception than could be had by confining their interest totally to groups of larger size.²⁹

Simmel, who was writing about groups of two and three persons, is a good example of a theorist whose urge toward generalized theory led him to look at size as a social determinant of relationships. Along with Simmel, Durkheim, Cooley, and Mead were concerned with the problem of social control of behavior and saw the phenomenon of internalization as tied up with the interaction of the individual and others in groups.

²⁸H. Mulford and S. Winfield, "Self Conceptions in the General Population." Sociological Quarterly, Vol. 5, 1964, pp. 35-46.

²⁹P. Hare, E. Borgatta, and R. Bales, Small Groups. New York: Alfred A. Knopf, 1965, p. 3.

European Background

Durkheim's Division of Labor, although it centered upon societal problems, does make frequent reference to the group organization in a generic sense. His analysis of the division of labor has many modern counterparts with emphasis on concepts such as role differentiation, and the problem of equilibrium.³⁰

Durkheim emphasized the ability of a society under the orientation of organic solidarity to assume an almost juridical form of self regulation. He attributed this tendency toward equilibrium to the operation of smaller groups within the larger society in that the group has a containing effect upon the individual.

According to Durkheim, all action if it is to be productive and to remain viable, must take the form groups. He felt that man biologically had an innate tendency toward the formation of groups. He stated that consolidation was actually:

"A network of links which little by little have been woven and which makes something permanent of organic solidarity."

If there is one rule of conduct which is contestable, it is that which orders us to realize in ourselves the essential traits of the collective type.³¹

Because of group formation and organization, Durkheim believed that a sort of collective conscience evolved which served to unite

³⁰"Division of Labor." Ibid., p. 87.

³¹Ibid., pp. 9-10.

individuals and mediate in conflicting areas. He additionally felt that groups developed morally in concurrence with the moral philosophy of a particular nation:

"We have shown that this rule had as its function the presentation of all agitation of the common conscience, and consequently of social solidarity and that it could accomplish this role only by having a moral character."³²

To emphasize the generic importance of the group as evidenced in the collective conscious, he further states:

"It is impossible for offenses against the most fundamental collective sentiments to be tolerated without the disintegration of society, and it is necessary to combat them with the aid of the particularly energetic reaction which attaches to moral rules."³³

If the division of labor then produces solidarity, it is not only because it makes each individual an "exchangist", it is because it creates among men an entire system of rights and duties which through collective formation link them together in a durable way.

Central to Simmel's theoretical framework is the significance of numbers for social life. All social life could be viewed in terms of reciprocal interaction or "forms of socialization."

For Simmel, the number operates as a classificatory principle within the group. Numerical subdivisions are composed either of persons who are somehow related--relatives--friends, neighbors, or of equals or unequals who supplement each other. Numerical identity

³²Ibid., p. 10.

³³Ibid., p. 11.

constitutes the formal principle of classification, though it never decides alone. Simmel views groups as being classified as dyads and triads essentially as influenced by the group.

To Simmel, isolation does involve to some extent the individual's interaction. It, however, is only important to the individual as it involves the somehow imagined but then rejected image of society. Such an individual might well isolate himself from society but first must have recognized its existence through interaction.

The Dyad. The simplest sociological formation is that which exists between two individuals. Here is contained the foundation for more complex interaction. Usually such relationships are engaged in for pure exchange of gratification and when one party decides to terminate the relationship, a group no longer exists.

However, such relationships do possess the characteristic of a group and do assume an autonomous super-individual phenomenon. When the super-individual characteristic ceases to exist, so does the group.

The Triad. The sociological structure of the dyad is characterized by two phenomena that are absent from it. One is the intensification of a relationship by a third element or usually by a framework which transcends the one to one confrontation. The other is a sole dependence upon the other individual for continuation of the relationship. In the triad, a third individual is added and it is here that the group finally emerges.

Among the three elements each one operates as an intermediary between the other two.

We have now reviewed some of the earlier writings of pioneers in the areas of groups. We shall now turn to an analysis of the discipline as it developed an interest in America.

Primary Groups. Perhaps the most renowned early American theorist in this area was Charles H. Cooley, with his now famous concept of the primary group:

"By primary groups, I mean those characterized by intimate face to face association and cooperation. They are primary in several senses, but chiefly in that they are fundamental in forming the social nature and ideals of the individual."³⁴

Primary groups then are primary in the sense that they guide the individual in his earliest and most complex experience of social unity and also in the sense that they do not change to the same degree as more elaborate relations. They actually form a relatively permanent source of which complex relations evolve.

Cooley maintains that human nature is not something existing innately in the individual; but a group nature or primary phase of society--that is, a condition of the social mind. It is through the primary group contact that human nature is begun.

Following Cooley arose another significant contributor to the field of group analysis, whose thoughts are germane to the field of Reference Group Theory. That is, George H. Mead.

Mead's theoretical conceptualization in Mind, Self, and Society is today one of the landmarks of social psychology. His major

³⁴C. H. Cooley, "Primary Groups." Ibid., p. 17.

principles of group formation and participant communication might best be summarized by the following:

"The principle which I have suggested as basic to human social organization is that of communication involving participation in the other."³⁵

Here the reference is to role taking which in consideration of the generalized other, allows the individual to "get outside" himself and view his image as the other might view it. It is through this taking the role of the other person that the individual is able to come back to himself and redirect his process of communication. The immediate effect of role taking lies in the control the individual is able to exercise over his own response.

This form of social control serves to integrate the individual and his actions with reference to the organized social process of experience and behavior in which he is implicated. The individual therefore becomes self-conscious and self-critical. Self-criticism then is essentially social criticism, and behavior controlled by self-criticism is essentially behavior controlled socially.

The development of this process is dependent upon getting the attitude of the group as distinct from that of the separate individual--the "generalized other."

I shall consider one more theorist of importance in the development of American interest in the field of group analysis--Floyd H. Allport.

³⁵G. H. Mead, "The Social Foundations and Functions of Thought and Communication." Op. cit., pp. 20-24.

Here some conclusions Allport reached regarding the influence of group on association and thought will be stated in synoptic form:

A. The influence of group upon association. Here the main conclusion was that a co-working group is distinctly favorable to the process of free association. The influence of the group is subject to the nature of the task. Certain individuals are more susceptible to group pressure than are others.³⁶

B. Qualitative aspects. A greater number of personal associations are produced alone than in the group. Subjects in a group tend to produce about the same ideas.

Two major conclusions here were:

C. Influence of the group upon thought. More ideas are produced in the group than when working alone. Ideas usually are less incisive and logical than those arrived at in solitary thought.

From what has been stated previously we can see the gradual development and movement of the discipline of group analysis from Europe to the United States. Certainly a more comprehensive analysis of each contribution might well have been presented. Also, many more contributions might well have been discussed. The previous were chosen because of their renown and highly significant contributions to the discipline.

Recent Contributions to Reference Group Orientation

Lewis Killian of Florida State University studied the behavior of an army troop working in a military railway service to demonstrate the noted effect of the civilian environment upon military personnel.

³⁶F. H. Allport, "The Influence of the Group Upon Association and Thought." Ibid., pp. 31-36.

Although the individuals were members of the active military, because of their unusual situation such "military courtesies" as necessary were virtually abandoned. It is evident that even though the troops were in a particular membership group, they referred themselves to the civilian job reference group as a guide for their behavior.

In an analysis of the significance of multiple reference groups, Killian also studied the reactions of individuals in dissatisfying situations in four southwestern communities.

Killian observed a state police officer, who upon witnessing a tornado striking a town, decided to drive to another town to secure help, as that was his job. Here, as it is obvious, the individual was referring himself to an occupational reference group rather than his friendship group in the stricken town.

Other observations were made of telephone workers on strike in the disaster community. During the disaster workers were allowed to return to work but ordered "on strike" several days later. Many individuals then chose to resign from the union and remain at work. We can here see the friendship group being utilized as a frame of reference.³⁷

Contrasting Reference Groups. Perhaps this principle might be best exemplified by a summary of conclusions arrived at in a study performed on the concept of marginality. The marginal individual might be looked upon as the individual who, although a member of one reference group, chose to refer himself to another as a guide of behavior.

³⁷Lewis Killian, "The Significance of Multiple Group Membership in Disaster", American Journal of Sociology, 1957, pp. 390-14.

Certainly the most common example of marginality exists among individuals belonging to an ethnic group, who because of their inability to become accepted in larger society and their tendency to reject the standards of their own group, feel rather insecure in their reference group affiliations.

Marginality, however, is not confined to members of minority groups. The foreman, for example, in the industrial setting often finds himself in a similar position as he is between both the workers and management.

Rothlisberger pointed out that the foreman is often variously regarded. Management looks upon him as the level of management at the "grass roots." The foreman looks at himself as a "go between" among labor and management. The workers regard him as the "boss."³⁸

The foreman then is unable to take either the workers or management as his reference group.

Professional groups. Blau and Scott in a study of "County Welfare Agency" analyzed the attitudes of social workers toward the profession of social work considering education and orientation in terms of being "cosmopolitan or local."

In summary, the authors found that social workers possessing the (M.S.W.) degree tended to adopt the profession rather than the agency as their reference group. Social workers possessing only the bachelors

³⁸p. Blau and W. Scott, Formal Organizations. New Jersey: Prentice Hall, 1968, pp. 127-139.

degree consistently referred themselves to the county agency. The professional social workers were classified as "cosmopolitan" and the remainder as "locals."³⁹

Tamotsu Shibutani. Perhaps one of the most significant recent contributions to the study of reference groups, Shibutani's major achievements have been in his clarification of the concept.

His task has been that of examining the conceptions of reference group implicit in its actual usage, regardless of its formal definition. After reviewing the works of the early founders and more recent contributors (e.g., Merton, Rossi), he arrives at three broad uses of the concept in contemporary writings.⁴⁰

One usage of the concept is in the designation of the group which acts as a point of reference in making comparisons or contrasts--that is, especially in the formations of judgments about oneself. Here the reference group is used as a standard which the actor uses to formulate his opinion of a situation and his position in it.

The second use of the concept is evident when it is used to denote a group in which the individual desires acceptance or membership. Here the concept is used to denote a group of individuals with whom the actor desires association.

³⁹Ibid., pp. 156-59.

⁴⁰Shibutani, "Reference Groups as Perspectives," American Journal of Sociology, Vol. 60, 1958, pp. 562-69.

The third use implies an existant group whose norms and values guide the individual's behavior although it is not a membership group nor need it be a group in which the individual desires membership.

Present Situation

Because of its social psychological grounding, it is often quite helpful in studies involving research in the area of attitude development and change, and as such is influenced by the group. It may well be used to explain both group orientation and the individual's orientation as he is constantly influenced by the group or "non-group."

Reference Group Theory shall serve as the theoretical framework of this dissertation. It appears that Reference Group Theory might suffice in explaining and possibly predicting environmental attitude.⁴¹ For the most part, the selection of reference groups will be of the nature of membership groups, whenever such group is an actual organization or social category.

This theoretical orientation served as the guide for Newcomb's research at Bennington College. For a summary of that study, see Appendix II.

CHAPTER V

RESEARCH DESIGN

Introduction

This dissertation centers around the construction of a power plant and possible impact upon area residents' environmental attitudes in the Northeast section of South Dakota. The primary areas of concern are, Milbank, South Dakota, Big Stone City, South Dakota, Ortonville, Minnesota, and their contiguous rural areas.

To assess environmental attitudes in the area of study, an interview schedule based upon a reference group theoretical orientation was compiled and administered to a sample of 180 area residents utilizing heads of household as respondents.

The Sampling Procedure

The total sample was based upon a 5 percent urban proportion and 20 percent rural proportion to assure equal distribution and representativeness of each center of the population.

Administration of the interview schedule was based upon the following sampling criteria.

Milbank, South Dakota

Since members of our universe of discourse were heads of households, a sampling frame comprised of electrical users was obtained from the district manager of Otter Tail Power Company. This method was deemed the most accurate by the research team as all occupied homes in

the area reportedly had electrical service. Other methods, such as sampling from telephone users and various utilities were investigated, but determined to be less comprehensive.

For all practical purposes, our population with reference to Milbank, South Dakota, was comprised of its 1,156 non-commercial electrical users. Of this figure a 5 percent random sample was drawn using a table of random numbers to secure a total 59 potential respondents.

Ortonville, Minnesota

Our 5 percent sample from this city was taken at random, again, utilizing electrical and water-user data made available by the office of City Clerk, Ortonville, Minnesota. Our population, for purposes of sampling, included some 926 non-commercial utility users, from which a random sample of 47 respondents was drawn.

Both Milbank, South Dakota and Ortonville, Minnesota are considered "cities" in that both might so be classified by census definition of 2,500 or more inhabitants.

Big Stone City, South Dakota

This small town is not considered an urban area by census definition. The 1960 population of Big Stone City was 718. A 20 percent random sample, utilizing electrical and water user data was accomplished in a sampling universe of 200.

Rural Sampling - Methods

In addition to the areas specified above, the following townships were sampled as part of the study:

A)	Alban Township	Population	1960	487
B)	Big Stone Township	Population	1960	313
C)	Ceneseo Township	Population	1960	347
D)	Lake Township	Population	1960	280
E)	Lockwood Township	Population	1960	160
F)	Becker Township	Population	1960	130 ¹

Sampling in rural areas was accomplished using a stratified random method. Farm size was used as the criterion of stratification. Farms ranged from a reported 8 acres to 4,900 acres with the average farm size being 160 acres. Because the sampling distribution was heavily weighted at both ends, a stratified random sampling method was selected.

Statistical data regarding farm size were obtained from the agricultural stabilization and conservation service officers (USDA) in each affected county. The data were statistically arrayed by farm-acre-size and strata were delineated utilizing the concept of natural breaks. Random sampling was then accomplished within the specified strata. A total 68 respondents were selected in this fashion.

The Interview Schedule

Criteria for selection of reference groups:

In Preparation of the interview schedule, sources of research indicated that certain socio-demographic variables might possibly have significant influence upon individuals environmental attitudes - (see

¹Source: U. S. Census Final Report, 1960 (1970 Population Statistics not available at time of sampling).

Review of Literature for detailed account). Such variables as appeared evident shall be treated as referent groups and serve as independent variables in analysis.

Part one of the interview schedule included personal data such as age, sex, marital status, and other descriptive information (see Appendix I). Anonymity was assured all respondents. Included also under part one was a knowledge scale designed also to serve as a referent group.

Part two of the interview schedule consisted of several likert type (5 point response) scales designed to assess attitudes of respondents with respect to environmental considerations. Standardized scales were used where available and additional scales were developed using items based upon the literature and reference group theory.

Definition of Terms

Based upon the problem statement, review of literature and theoretical framework; the following are operational definitions of terms generic to this dissertation:

Attitude

Although there are a number of traditional definitions of attitude, the following are cited as illustrative usage of the term:

"An enduring learned predisposition to behave in a consistent way toward a given class of objects."²

²English, H. and English A. A Comprehensive Dictionary of Psychological and Psychoanalytic Terms: A Guide to Usage; New York, Mc Kay, 1958, p. 50.

"A mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individuals response to all objects and situations with which it is related."³

An individuals attitude may then be considered as a response consistency regarding social objects. For the purpose of this research, attitude shall be regarded as a relatively enduring system of evaluative reactions based upon the reflective and evaluative concepts or beliefs which have been learned about the characteristics of a social object or class of social objects.⁴

Environment

This term may most aptly be defined by the following:

"The aggregate of all the external conditions and influences affecting the life and development of an organism, human behavior, or a society."⁵

Environmental Attitude

For the purpose of research definition, environmental attitude shall be viewed as the individuals learned, behaviorally conditioned and enduring evaluative reactions toward the aggregate of all the external conditions and influences affecting him.

³Allport, G. W. "The Historical Background of Modern Social Psychology." In G. Lindzey, Ed. P., Handbook of Social Psychology, Vol. I, Cambridge, Mass., Addition - Wesley, 1954, p. 31.

⁴Shaw, M. and Wright J. Scales for the Measurement of Attitudes, McGraw-Hill Book Co., New York, 1967, pp. 2-4.

⁵Websters New Intercollegiate Dictionary, G. C. Marriam Co., Springfield, Mass., 1959, p. 276.

Reference Group

This concept was discussed at length in the theoretical framework and shall here be briefly defined as; that body or collection of norms, values and standards to which the individual refers himself in guiding his behavior.

Age

Each respondent was asked to indicate his age. Age was regarded as the number of years of life as of their last birthday.

Income

Total gross income received from all sources, to include wages, salaries, income received from investments and any other sources.

Education

Refers to the total number of years of formal training, including vocational and technical training.

Household Head

That individual of the conjugal family unit perceived as being charged with primary financial and supervisory responsibility for such unit.

Primary Head

Consists of those individuals living alone or heading non-conjugal families.⁶

⁶No individuals acting as primary heads of non-conjugal family units acted as respondents.

Respondent

That individual perceived as being a household head and physically responding to the questions asked by the interviewer.

Variables

The dependent variable for this study is environmental attitude.

Independent variables include the following:

- A) Age
- B) Education
- C) Knowledge
- D) Religion
- E) Level of Living
- F) Organizational Participation
- G) Sex
- H) Length of Residence
- I) Family Size
- J) Community Identification

The hypothetical relationship can be expressed in functional form as follows:⁷

$$y = f(a, b, c, d, e, f, g, h, i, j)$$

⁷Independent variables a - j are considered an interrelated set of variables acting each in conjunction with all others as they totally influence the dependent variables.

Formulation of Hypotheses

Based upon all previous material the following are stated as research hypotheses:

General Hypothesis:

- A) Significant relationships will be found to exist between the selected set of variables and environmental attitude.

Sub-Hypotheses:

- A) Significant relationships will be found to exist between age and environmental attitude.
- B) Significant relationships will be found to exist between level of education and environmental attitude.
- C) Significant relationships will be found to exist between level of knowledge and environmental attitude.
- D) Significant relationships will be found to exist between religion and environmental attitude.
- E) Significant relationships will be found to exist between level of living and environmental attitude.
- F) Significant relationships will be found to exist between organizational participation and environmental attitude.
- G) Significant relationships will be found to exist between sex and environmental attitude.
- H) Significant relationships will be found to exist between length of residence and environmental attitude.
- I) Significant relationships will be found to exist between family size and environmental attitude.
- J) Significant relationships will be found to exist between community identification and environmental attitude.

THE COLLECTION OF DATA

The Pretest

During August of 1970 the interview schedule was administered to a sample of 30 Clear Lake, South Dakota, area residents. The purpose of this administration was to determine possible weaknesses in the schedule and to correct such prior to the final administration in the area of study.

Clear Lake, South Dakota, was chosen for the pretest as the town is similar to Big Stone City in terms of population size and composition, and is quite removed from the area of actual study.⁸

Following collection of pretest data, analysis of variance was conducted to determine significance of variability. The "F" value (1.08) with degrees of freedom 10, and 298 respectively ($\frac{N}{D}$) proved insignificant at the chosen .05 level. Based upon pretest results various changes were incorporated into the final instrument.

The Final Study

Prior to final administration of the interview schedule, a 3-day training session was held for all interviewers. The sessions were designed to include both the theoretical and practical construction of the schedule. Sessions included several practice administrations to non-sample members.

⁸Removal from the areas of study was deemed a matter of consideration to eliminate the possibility of reactive measures.

The interview team consisted of 5 South Dakota State University graduate assistants and 5 area residents. Interviewers were assigned to pre-determined areas of the sample and each schedule was reviewed by the research coordinator to insure completeness and consistency.

Scoring of Attitudes

Attitudes of each respondent were recorded in each dependent variable area utilizing a 5-point Likert type scale and weighted as follows:⁹

1	2	3	4	5
SA	MA	U	MD	SD
(Strongly Agree)	(Mildly Agree)	(Undecided)	(Mildly Disagree)	(Strongly Disagree)

Add data were subsequently coded for computer processing using a least-squares multivariate regression analysis.

⁹As apparent from the above, an attitude score of 5 would indicate disagreement whereas, a score of 1 would indicate strong agreement.

CHAPTER VI

STATISTICAL ANALYSIS OF DATA

General

Using a continuous dependent variable of attitude toward environment as measured by a 5-point Likert scale and a set of independent variables, a least squares multivariate regression model was utilized in the analysis of the data. Utilization of this technique yielded in rank order fashion - through use of a stepwise program--the independent variables and their association with the dependent variable under conditions of the study. Total accountable variability was also shown through utilization of this technique.

An iterative procedure was used to reduce the number of explanatory variables in the original relationship. The first step included estimates of regression coefficients associated with all variables. The significance of each relationship was tested by calculation of F values. Variables associated with smallest F-values were dropped from the relationship. Parameters were estimated for the equation with a reduced number of variables repeated for each variable and dropping those having the smallest F value in each iteration until those remaining were associated with a regression coefficient significant at the .10 level. A coefficient of multiple correlation (R^2) was computed and served as an indication of common factor variance.

All calculations and findings are based upon the following routine mathematical assumptions:

- A. That the form of the regression equation is linear.
- B. That the distribution for the Y values for each X are normal.
- C. That the variances of the Y distributions are the same for each value of X.¹

At the .10 level of significance, there exists a 10 percent chance of rejecting the null hypothesis when it is true. The probability of accepting the hypothesis when it is false is not known.

The independent dependent variables relationship is functionally diagramed as follows:

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10})$$

or

Y - environmental attitude - is a function of the following as they appear in a set relationship:

X_1 = Age

X_2 = Education

X_3 = Knowledge

X_4 = Religion

X_5 = Level of Living

X_6 = Organizational Participation

X_7 = Sex

X_8 = Length of Residence

X_9 = Family Size

X_{10} = Community Identification

¹Blalock, Hurbert M., Social Statistics, Mc-Grawhill Book Company, New York, 1960, p. 277. (X, refers to independent variable, Y refers to dependent variable).

The variables entered the regression equation in the following sequence:

$$Y = (a + B_1X_1, B_2X_2, B_3X_3, \dots, B_kX_k)$$

Where:

Y = Environmental Attitude

a = Y - intercept

B = Regression Coefficient

$X_1 \dots X_k$ = Variable Set²

Measurement of Variables

Environmental attitude (Y): This variable was measured by means of a 5-point Likert type scale utilizing a response set having a theoretical range from 7 to 35 points. Scale questions were related to definitive ecological aspects of the studied area.³

X--Age: This variable was measured by an interval scale of chronological age. Age as of last birthday was requested.

X₂--Education: Again an interval scale was utilized. Respondents were asked to indicate number of years of formal education.

X₃--Knowledge: To assess relative degree of knowledge a cidhoto-mous scale with a theoretical range from 10 to 70 points was utilized. Respondents were requested to indicate knowledge in 10 substantive areas.

²For labeling of integral parts of variable set, (see previous functional diagram.

³See Appendix for questions.

X₄--Religion: This variable was categorized by assigning the respondent to indicate his religious denomination, and later identified member.

X₅--Level of Living: Measurement of this variable was accomplished through utilization of a dichotomous scale having a theoretical range from 13 to 26. Scale questions were related to possessions or non-possession of various facilities.

X₆--Organizational Participation: Assessment of this variable resulted to asking the respondent the number of organizations in which he is a member and the same was recorded. Further breakdown of intensity of participation was quantified for descriptive purposes.

X₇--Sex: This variable was categorized by a dichotomous nominal scale. Numerals 1 and 2 were assigned to males and females, respectively.

X₈--Length of Residence: Categorization was accomplished by indicating total number of years residence in the community of address.

X₉--Family Size: Measurement was indicated by number of people in the conjugal unit.

X₁₀--Community Identification: This variable was classified by nominal categorization of the response to the question "with which community do you primarily associate yourself?"

⁴Variables X₄, X₇, and X₁₀, are dummy variables.

Use of "Dummy" Variables

In this dissertation religion, organizational participation and are considered "dummy" variables. Simply defined such variables are those which cannot be measured numerically but rather may be assigned numerals for the purpose of classification.

The dummy variable is a simple and useful method of introducing a regression analysis information contained in variables that are conventionally measured on a numerical scale, e.g., race, sex, religion.⁵ Among possible constraints the most useful are to set constant term of the equation to zero or to omit one of the dummy variables from the equation.

Level of Significance

Due to the lack of existing literature relative to environmental longitudinal research and the base line nature of this study, the .10 level of significance was chosen. This level of significance was chosen in order to allow maximum theoretical representativeness of the selected variable set and to provide possible indicants as to areas of future research.

The choice of this statistical level establishes a probability of .10 of rejecting the null hypothesis when it is in fact true.⁶

⁵Suits, Daniel B., "The Use of Dummy Variables in Regression Equations," Journal of the American Sociological Association, December, 1967, pp. 548-549.

⁶Skipper, James, "The Sacredness of the .05 Level," The American Sociologist, Vol. 2, No. 1, February, 1967, pp. 16-18.

Statistical Hypothesis

The statistical hypothesis governing the research outlined in this dissertation is:

There will be no significant relationship between the variable set of independent variables⁷ and environmental attitude.

Methods of Multivariate Analysis

General: The interview schedule contained a total of 43 independent variables and the dependent variable (attitude toward environment).

Review of Literature indicated possible significance of the chosen 10 independent variables.

For the purposes of contrast and comparison, two actual regression equations were processed. Equation one used the total 43 independent variables and equation two used the selected 10 independent variables. Both equations were reduced through an iterative process designating significant variables at the .10 level of significance.

Statistical findings:

Equation 1: Utilizing 43 variables yielded an R^2 (indicative of common factor variance) of: .356.

The 43 variables entered to achieve R^2 .356 were reduced through iterative iteration to 17 variables with an R^2 of .239.

Equation 2: The selected 10 independent variables entered into this equation resulted in an overall R^2 = .193. With subsequent reduction using three variables to R^2 = .113 at the .10 level of significance.

The variable set includes variables X_1 through X_{10} , as specified usually.

CHAPTER VII

FINDINGS, CONCLUSIONS, IMPLICATIONS FOR FUTURE RESEARCH

Findings

A variable set of independent variables was introduced into the regression equation, in their hypothesized relationship to the dependent variable in the following order:¹

Y = Environmental Attitude

X_1 = Age

X_2 = Education

X_3 = Knowledge

X_4 = Religion

X_5 = Level of Living

X_6 = Organizational Participation

X_7 = Sex

X_8 = Length of Residence

X_9 = Family Size

X_{10} = Community Identification

Through the step-wise process of multiple regression analysis,

variables were ranked in final form as follows:

¹ See Chapter VI, p. 124 for formula.

Variable
Number
(Rank)

Variable

1)	Knowledge
2)	Organizational Participation
3)	Length of Residence

4)	Education
5)	Age
6)	Sex
7)	Community Identification
8)	Family Size
9)	Level of Living

R^2 all variables .193

R^2 3 variables .132

total variable set achieved an R^2 of .193.

iterative process reduced the total variables significant at level to 3 variables having an R^2 of .132. Knowledge, organizational participation, and length of residence were the more potent

. All others are not significant at the .10 level of

nance.

use variability was not significant, we must fail to reject al null hypothesis of total variable set significance. Sta-sub-hypotheses regarding variable significance for variables 3 may be rejected whereas we must fail to reject sub-s regarding the remaining variables.²

final regression equation yielding, through the step-wise or process, an R^2 of .132 is stated as:

$$Y = 11.64175 + 3.49 (X1) - .888 (X2) + .061 (X3)$$

igion did not appear in the set array.

As a result of a step-wise multivariate statistical analysis, the null general null hypothesis that: there will be no significant relationship between the variable set of independent variables and the dependent variable of attitude toward environment; cannot be rejected. The total proportionate sum of squares reduced was insufficient at the .10 level of significance.

Regression analysis was capable of explanation at an R^2 level of .193 with the total variable set of 10 independent variables.³

Of the total R^2 of .193 the more significant variables in the total set were length of residence, knowledge, and level of living.

Three variables were capable of explanation at an R^2 level of .132.

Hypotheses (in null form) regarding the significance of these variables may be rejected at the .10 level of significance.

Interpretations

Interpretation which follows will present a, by-variable, account of each set member with the most powerful variables, initially discussed. Variables of lesser significance will be discussed in the order of their appearance in the total set, final, regression equation. Since the total R^2 value is indicative of shared or common factor variance, a numerical breakdown by variable item would present an inadequate portrayal of the relative potency of each. Because of this

³For specification of detailed variable set, see Chapter VI, page

tical characteristic, variables will be reported as only significant or insignificant at the .10 level.

Knowledge

The independent variable of knowledge appeared in position one (1) in the step-wise regression analysis. This variable may then be considered as having the highest degree of association with the dependent variable, under the conditions and limitations of this study.

This suggests the possibility of significant association between knowledge and environmental attitude. Response on the knowledge scale ranged from averages of +190 and -88.⁴ These data indicate that a larger number (approximately two and one-half times) of individuals possessed a higher degree of knowledge.

Organizational Participation

As a result of step-wise regression analysis, the independent variable of organizational participation appeared in position two (2) in the final display of arrayed variables.

From these data there appears to be significant association (negative) between organizational participation and attitude toward environment.

Of those individuals participating in organizations, the largest number belonged to religious associations with veterans, farm and

The index of knowledge was computed through summation of positive and negative (-) responses and reduction of same through division by the item total (.10), see Table 1.

cial organizations appearing, respectively, in positions two, three, and four.⁵ Under conditions and limitations of this study, environmental attitude is regarded as a function of organizational participation.

Length of Residence

This variable was ranked in position three in the final array of variables associated with environmental attitude.

From this information it is possible to infer significant relationship between length of residence and environmental attitude, under the conditions and limitations of the study. The null sub-hypothesis of insignificance of relationship may be rejected at the .10 level of significance.

Average length of residence for urban dwellers was 21.93 years

and average length of residence for rural inhabitants was 30.66

Educational Level

This variable was displayed in position four of the final statistical array. Educational level as an independent variable did not effectively reduce the total sum of squares to be considered significant at the .10 level of significance.

Tabular comparison of sub-groups utilizes absolute numbers due to small size. See Blalock, H. M., p. 28.

See Table Three for more detailed description.

We therefore must fail to reject the null sub-hypothesis relative to the significance of this variable. Environmental attitude under the conditions and limitations of this research is not considered a function of educational level.

As a result of statistical analysis, age as an independent variable occupied position five in the final display of variables. Although the review of literature and theoretical framework indicated the possibility of such a relationship, such failed to appear significant in analysis. Under the conditions of this research, age, in set relationship was not significant at the .10 level of significance.

We, therefore, must fail to reject the null hypothesis and conclude that environmental attitude is not a function of age.⁷

In the total regression analysis, sex failed to achieve statistical significance at the .10 level of significance. The null hypothesis regarding sex as it is associated with environmental attitude cannot be rejected and we must conclude that under the conditions of the study, sex is not significantly associated with environmental attitude.

Community Identification

As an independent variable, community identification failed to adequately reduce the total sum of squares and therefore did not achieve

⁷Descriptive findings presented in Table Eight.

nance at the .10 level of significance. We must fail to reject hypothesis regarding this variable and conclude that under the conditions of this study, community identification is not significantly associated with environmental attitude.⁸

Family

Although originally hypothesized as a significant variable, family size failed to attain significance at the .10 level of significance. The hypothesis cannot be rejected and family size must be regarded as having an insignificant association with environmental attitude.

Living

As a result of the statistical analysis we must fail to reject the hypothesis relative to the significance of level of living and must conclude that level of living, under the conditions and circumstances of this study, is not associated with environmental attitude.

SUMMARY AND CONCLUSIONS

For the most part, individuals residing in the areas of study approach and hold favorable attitudes toward their present environment.

See Table Four for descriptive presentation of sampling distribution for community identification.

See Table Five for data relative to level of living.

These attitudes appear to be significantly influenced by level of knowledge of the environment and of the incoming power plant; general level of organizational participation and length of residence in the area. Individuals having greater levels of knowledge generally held less favorable attitudes toward their environment. As an individual participated in a greater number of organizations, his environmental attitude became more positive, indicating his assumption of the dominant values of the organizations.

Long-time residents of the studied area appear to have favorable environmental attitudes. This is probably a function additionally of the social structure of the area's inhabitants and lack of extensive mobility.

Because of the base line nature of this research, six independent variables failed to achieve significance at the .10 level. A detailed discussion of each variable is included under the conclusions of the study.

The reference group theoretical orientation was supported by all significant findings of the study and served as the guideline of the research.

Area residents generally stand ready to accept the proposed Big Horn Power Plant in their community. The plant is regarded, generally, as a significant addition. People in Milbank, South Dakota will probably derive greater direct economic benefit from the facility as it is to be

ed on a tract of land under that town's jurisdiction. This might significantly increase the tax base in that area, and will provide a source of additional revenue.

Employment conditions in the area might improve during the operational phase of the power plant although most employees will be of a casual nature and brought in by the power company.

Because of the small number of additional jobs which the plant will create and the limited number of additional community residents, the area's existing community institutions should be adequate.

The consequences of the additional revenue available to the city and the bank are at this time difficult to determine.

General Conclusions

As indicated by the results of statistical analysis, the multiple regression technique was capable of explaining approximately 19.3 percent of the variability of the dependent variable, attitude toward environment.

In failing to reject the general null hypothesis of no significant association, we must initially conclude that environmental attitude is not significantly associated with the set of selected independent variables.

Although such variables were selected following a review of literature and construction of a theoretical model, there appears to be some unexplained variability which were not detected as a result of this research.

Due to the fact that the review of literature revealed no such environmental attitudinal studies, this study is essentially baseline nature and therefore largely descriptive in essence. Although attitudinal scales were constructed using the Likert and based upon already tried and tested scales, insignificant validity was realized. Therefore, it may be concluded that such studies need extensive revision for studies of an environmental nature.

Conclusions

The following shall present conclusions regarding each significant independent variable as it influenced the dependent variable of attitude toward environment. No conclusions, other than that of "insignificance" shall be drawn regarding those variables which did not achieve significance at the .10 level.

Knowledge

Based upon the review of literature with particular reference to Gross, in "The Sociology of Education," it was expected that knowledge would be significantly associated with environmental attitude.¹⁰ In statistical analysis this was largely confirmed. It may be added that review of literature regarding knowledge provided a relatively accurate indicator of its association to environmental attitude. This appears to support conclusions derived from previous studies.

¹⁰Gross, Neal, "The Sociology of Education", Sociology Today, Books, Inc., New York, 1959, pp. 128-139.

with reference to our theoretical framework, knowledge as a possible source of referent orientation also appears to have been borne out. Individuals having greater knowledge had a less favorable attitude toward their environment. This generally appears to support and line with existing thought relative to reference group theoretic orientation. It is conceivable that individuals' environmental attitudes are a function of their knowledge referent group.

Organizational Participation

The review of literature seemed to indicate a distinct possibility of organizational participation influencing attitudes. Sills, in his study, indicated that organizational participation is associated with individuals assuming the dominant attitudes of that organization in which they are a member.

As a result of the statistical analysis, organizational participation exerted an influence upon environmental attitude. This seems to support conclusions arrived at in the review of literature.

As reference groups, organizations or membership groups serve well as sources of behavioral orientation. In this study it is apparent that organizational orientation

Individuals belonging to a greater number of organizations had a more favorable attitude toward their environment than did individuals belonging to a lesser number of organizations. Most organizations in the area of study are favorably disposed toward the incoming power plant.

Both the review of literature and theoretical framework are supported by the variable of organizational participation.

h of Residence

Our review of literature indicated a possibility of association between length of residence and attitude. This conclusion was supported by results of the research. Long time residents of the area had attitudes more favorable toward their environment than did newcomers and individuals having lived in the area for only short periods of time.

These data also appear to be in line with reference orientation. It is probable that length of community residence was service as a basis of orientation regarding environmental attitude.

As has been stated, the variables previously discussed in this section are those which achieved significance at the .10 level of significance. These variables were consistent with and supported the review of literature and theoretical framework of the dissertation. Variables which will now be discussed did not achieve significance at the .10 level of significance and shall be considered to exert insufficient influence upon environmental attitude.

All of these variables were selected in consideration of the review of literature and theoretical framework, and thought to be associated with attitude toward environment. Because the variables are statistically "insignificant", conclusions regarding the same are of a tentative nature only.

tion

Although education was found to be statistically insignificant, individuals having more education generally held less favorable attitudes toward their environment. These individuals for the most part their present ecological conditions less than desirable. Individuals with a lesser degree of education held generally more favorable attitudes toward their environment. The distribution of education as it appeared in our sample was bi-modal with a preponderance of individuals having completed either eight or twelve grades of school. The bi-modality of our distribution tends to reduce variability and, therefore, the relative possibility of significance.¹¹

Although statistically insignificant age appears to exert a positive influence upon an individual's environmental attitude, the review of literature and theoretical framework suggest the possibility that as an individual grows older his attitude toward the environment will become more conservative and he will hence tend to accept the "status quo".

Generally, older individuals were more favorably disposed toward their environment whereas younger individuals held more negative attitudes. Average ages of individuals in the sampling frame were quite close with 53.5 years being the overall average respondent age. This

¹¹See Table 3.

tends to reduce both variability and the possibility of significance.¹²

Females generally held less favorable attitudes toward their environment. The review of literature and theoretical framework seem to support this possibility, however, our sampling frame did not contain sufficient number of female respondents to generate significant results.

Community Identification

Although this variable did not achieve significance it did appear to have some bearing upon environmental attitude. Individuals residing in Brookings, South Dakota generally held more favorable attitudes than individuals residing in either Big Stone City, South Dakota or other communities. This might possibly be attributed to the fact that the power plant will greatly increase the tax base within that school district.¹³

Family Size

Individuals having larger families tended to be more conservative in their responses and generally were favorable in their attitudes. This supports the theoretical framework and review of literature. Such response sets might be generated by the direct economic benefit to the family of study or possibility of employment.

¹²See Table 8.

¹³See Table 4.

of Living

this variable does not appear to have any effect upon environmental attitude. Analysis of responses does not reveal any response significant correlation. Level of living does not support the review of literature or theoretical framework.¹⁴

tions of the Study

To rank the limitations of a study such as this would provide an accurate portrayal of their relative degree of importance or detriment. As with most studies, a valid question may be raised regarding the measurement. Likert scales, although believed to be reliable indicators of variables characteristics, have not been statistically validated. In this research a five-point scale was used to measure attitudes. A five point scale is less efficient than a seven-point scale as the extremes are accentuated. Greater variability is provided by a seven-point scale. Moreover, the knowledge scale was only of a dichotomous nature and therefore, additionally limited variability. It is also possible that the questions not only on the knowledge but also on the attitudinal scale may have been multi-dimensional. Additionally, the chosen level of significance may be considered the weakness of the study. The .10 level of significance increases the

See Table 5.

y of making a type I error as it brings into significance which might otherwise remain insignificant. It might be, however, that in such a baseline study this level of significance bring into light variables which might otherwise be neg-

onclude, a decided limitation of the study was its sample because of the age structure of respondents, little variability was observed. A larger sample would hopefully increase variability of the dependent variable.

Recommendations for Future Research

The follow-up studies to be accomplished relative to this project, variability must be increased to detect significant findings. One method of doing so would be to utilize a seven-point Likert scale in preference to a five-point response scale. A different type of open-ended questions might be utilized but scale responses of the Likert type would be preferable.

Up to final administration of the interview schedule, responses to the test information might be factorially analyzed to assure uniformity of response items. If possible, a contrast group should be used to assure reliability and construct validity. In future follow-up studies the sample size should be increased to obtain optimum variability. The level of significance might possibly be lowered to the .05 level if specified preconditions are met.

TABLE 9.

TOTAL POSITIVE AND NEGATIVE RESPONSES TO QUESTIONS
COMPRISING KNOWLEDGE SCALE

	Yes	No	Total
d construction of an electric power ?	175	3	178
anges in level of Big Stone Lake?	108	70	178
ironmental problems in this area?	63	115	178
munity problems in this area?	43	135	178
on of Minnesota-South Dakota dary Waters Committee?	90	88	178
industrial development programs?	50	128	178
tt out-put of proposed power plant?	52	126	178
tt out-put of present power plant?	36	142	178
on of proposed power plant?	146	32	178
y fuel to be used in operation?	137	41	178

Values +190 - 88 *

TABLE 10.

NUMBER OF SAMPLE MEMBERS PARTICIPATING IN AREA ORGANIZATIONS

Organizations	H.H.H.
1. American Legion	32
2. V.F.W.	25
3. 4-H Clubs	8
4. Farmer's Union Co-op	25
5. Jaycees	7
6. Home Extension Clubs	3
7. N.F.O.	19
8. Farm Bureau	2
9. Grange	1
10. Chamber of Commerce	16
11. Kiwanis	8
12. Masonic Order	11
13. Knights of Columbus	10
14. Elks	3
15. Scouts (Boy or Girl)	3
16. Religious	59
17. Others	17

TABLE 11.

EDUCATION LEVEL OF RESPONDENTS BY COMMUNITY OF RESIDENCE

	Big Stone, City, S.D. (N=61) (%)		Ortonville, Minn. (N=47) (%)		Milbank, S.D. (N=43) (%)		Rural (N=28) (%)		Total (N=179) (%)	
Graduate			1	(2.0%)	1	(2.3%)			2	(1.1%)
ate	9	(14.8%)	8	(17.0%)	4	(9.3%)	2	(7.1%)	23	(12.8%)
College,										
not graduate	4	(6.5%)	3	(6.4%)	1	(2.3%)			8	(4.5%)
hool										
ate	16	(26.2%)	12	(25.3%)	14	(32.5%)	11	(39.4%)	53	(29.6%)
High School	25	(41.0%)	20	(42.9%)	17	(39.6%)	13	(46.4%)	75	(41.9%)
hool										
des of less	7	(11.5%)	3	(6.4%)	6	(14.0%)	2	(7.1%)	18	(10.1%)
	61	(100.0%)	47	(100.0%)	43	(100.0%)	28	(100.0%)	179	(100.0%)

TABLE 12.

LEVEL OF LIVING INDEX FOR STUDY RESPONDENTS

	Yes	No
	Number	
Central Heating	129	49
Air Conditioning	68	112
Water Piped into House	172	4
Indoor Toilet	171	7
Bath and Shower	155	23
Refrigerator	177	1
Chest Freezer	137	40
Washing Machine	155	23
Sewing Machine	107	72
Dishwasher	33	145
Black and White T.V.	128	48
Color T.V.	72	107
Radio	178	-
Gramophone Player	30	148
Stereo Record Player	87	91

TABLE 13.

LENGTH OF RESIDENCE OF RESPONDENTS BY COMMUNITY OF RESIDENCE

	Average Number Years
nk, South Dakota	20.0
tone City, South Dakota	24.8
ville, Minnesota	21.0
s Valley, Minnesota	27.0
a, South Dakota	25.0
t, South Dakota	40.0

TABLE 14.

AVERAGE AGES OF SAMPLE AREA RESIDENTS BY
COMMUNITY OF RESIDENCE

Milbank	Big Stone City	Ortonville	Other	Average
50.1	54.7	52.8	56.4	53.5
41.2	43.4	41.5	45.5	42.9
12.3	14.7	15.2	16.2	14.6
			72.5	72.5

TABLE 15.

RESPONDENT RELIGIOUS PREFERENCE BY DENOMINATION AND
COMMUNITY OF RESIDENCE

	Milbank, S.D.	Big Stone City, S.D.	Orton- ville, Minn.	Other	Total
	26	18	20	11	75
	11	7	9	8	35
	14	8	18	4	44
	3	1	2	0	6
rian	1	0	1	0	2
f Christ	2	0	0	0	2
tional	3	0	1	0	4
l	3	0	0	0	3
					169

TABLE 16.
SAMPLE DISTRIBUTION - OF RESPONDENTS
BY COMMUNITY OF RESIDENCE

	Male
Big Stone City	61
Ortonville	47
Milbank	43
Rural	28
TOTAL	179

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APPENDIX I.

SOUTH DAKOTA POLLUTION CONTROL LEGISLATION (SUMMARY)

Following describes in detail the composition and operation of South Dakota's water pollution control agencies.

The committee on water pollution consists of the State Health Commissioner of the Department of Health, who shall be ex-officio chairman, the chairman of the water resources commission, and the director of the department of game, fish and parks. The director of the division of engineering of the State Department of Health shall be the secretary and executive officer.¹

Members of such committee meet at the call of the chairman to hold hearings and such other business as may come before them. Members without salaries are allowed actual and necessary traveling expenses in the conduct of their work.²

One of the foremost duties of the committee is that of classification of public waters, public waters then are divided into classes and subclasses, "A" and "B".

Class A" waters are those waters or parts thereof in which the pollution or corruption entering such waters can be so controlled that waters receiving such pollution and corruption shall not be undrinkable or unfit for domestic use, or unsafe as a source of water

¹South Dakota Compiled Laws, 1967, Annotated, Vol. 13, Allen Smith
²Id., Indianapolis, Indiana.

y or deleterious to fish or plant life, or shall not cause a public nuisance. "Class B" waters, one of which is Big Stone Lake, are waters or parts thereof which are more important to the welfare of this state as carriers of waste providing such wastes are not detrimental to the public health; provided, however, that no interstate or navigable waters shall be classified as "Class B".

Logically following from this classification - no person, firm or corporation shall discharge or cause to be discharged in "Class A" waters of this state any new pollution or corruption in the form of sewage, industrial or other wastes, liquid or solid, without first having applied for and received a permit from the water pollution commission for such discharge.³

In order to carry out the purpose of this law, the committee on water pollution has set standards of water quality to be applicable to waters of the state or portions thereof. Such standards of quality are desired to protect the public health and welfare and the present and prospective future use of such waters for public water supplied, propagation of fish and wildlife, recreational purposes, and agricultural, industrial and other legitimate uses. Such standards may be amended from time to time as determined to be necessary by the committee.⁴

Prior to establishing, amending, or repealing standards of water quality the committee must, after due notice, conduct public hearings.

³Ibid.

⁴Ibid.

f public hearings must specify the waters for which standards
nt to be adopted, amended or repealed, and the time, date, and
such hearing.

ndards of quality of the "Class A" water of the state or any
t or repeal thereof shall become effective upon adoption by the
e. In adopting standards of water quality or making any amend-
e committee shall specify a reasonable time for persons dis-
wastes into the "Class A" waters of the state to comply with
ndards and upon the expiration of any such period of time, revoke
y any permit previously issued which authorizes the discharge of
nto "Class A" waters of the state which result in reducing the
of such waters below the standards established by the committee.⁵

committee on water pollution may upon its own initiative, cause
vestigated the alleged pollution, or corruption of any "Class
s rendering them unwholesome or unfit for domestic use, or un-
a source of public water supply, or deleterious to aquatic life,
ng a public nuisance, and such investigations shall be made upon
ten petition of the governing body of any municipality or any
county board of health or one hundred electors of the state.⁶

is the duty of the committee to direct the secretary to carry
investigations as it may deem necessary, and the secretary shall
to the committee reports of such findings. The director of the

id.

id.

of sanitary engineering shall, at the direction of the committee, make such investigations, including necessary chemical and biological analyses, and submit reports to the committee covering investigations, such reports to include all of the data pertinent to investigations.⁷

If the committee, after investigation, finds that a person is polluting the "Class A" waters of the state by discharge of sewage, industrial waste, or other wastes, and that it would be prejudicial to the interests of the state to delay action, they must require any persons to appear before the committee and show cause why they should not be required to remove the cause of and desist from further pollution of the waters investigated. Such order shall be issued on the basis of facts setting forth the facts of pollution, and shall require such persons to appear before such committee at the county seat to show the source of pollution within thirty days after the service of the order. Affidavits in answer must be served by the alleged polluter on the committee at least ten days prior to such hearing. After a hearing the committee, if it believes the alleged offender guilty, shall make and enter an order directing the offender within a certain time to refrain from doing the thing found to be the cause of pollution or corruption.

An appeal may be taken from any order or decision of the committee to the circuit court of the county where the pollution occurs.

It is the duty of the attorney general on the request of the commission on water pollution to bring action for an injunction against any person violating the provisions of this law, or violating any order or resolution of the committee.⁸

Agreement with Contiguous States

During 1939 the States of Minnesota and South Dakota in joint conference adopted suitable legislation regarding those waters acting as boundaries between the two states.

The focal point of the legislation concerns Big Stone and Traverse lakes (both boundary waters) the former flowing in a southerly direction and the latter in a northerly direction. Both lakes drain in portions into each state.

To act as an administrative and coordinating authority, the above mentioned commission was established. The following is a synoptic presentation of the legislation and its function. (As supplemented 1960,

The commission, known as the South Dakota-Minnesota boundary waters commission, consists of the director of Game, Fish and Parks of South Dakota and the commissioner of conservation of Minnesota, or their successors, and an engineer appointed by the mutual consent of the Governors of South Dakota and Minnesota for a period of four years.⁹

Ibid.

Ibid.

of Commission

Commission has the power and authority to investigate and determine the most desirable and beneficial levels of boundary waters to be uniformly controlled and to prescribe a plan for controlling and maintaining such levels.

Commission has power and authority to hold hearings and take evidence as may be presented either after complaint or upon its initiative as to the desirability of any water level and plan of control and to make such orders concerning the same as in the opinion of the commission are for the best interests of the public.¹⁰

South Dakota-Minnesota boundary waters commission has the authority to make such orders as may be necessary to further the purposes of this legislation, and may prescribe and promulgate rules and procedures for the conduct of its investigations, surveys and

1

Injunction

Commission may, upon verified petition, apply to the district or circuit court in either state as the case may be, in any county in which the subject matter, for an injunction restraining the violation of any order, notice, rule or regulation made by it pursuant to the provisions of the chapter.

d.

d.

Construction of Artificial Controls

The State Game, Fish and Parks Commission of the State of South Dakota is authorized and empowered to participate with the department of Conservation of the state of Minnesota in the construction of such artificial controls as may be deemed necessary to maintain the most suitable and beneficial levels of boundary waters as determined by the South Dakota-Minnesota Boundary Waters Commission, and upon such determination, said Game, Fish and Parks Commission may expend funds for such purpose.

APPENDIX II.

SUMMARY OF T. M. NEWCOMB'S STUDY AT BENNINGTON COLLEGE

Introduction

This study, performed by T. M. Newcomb between 1935 and 1939, has been hailed as one of the most outstanding utilizing a reference theoretical orientation. The subject selected for study was the formation and development of attitudes (liberal - conservative) as influenced by referent groups of the entire student body of Bennington College.

Bennington, a small, rural, women's college, had opened its doors during the darkest days of the depression of the 1930's. Its students came from upper and upper-middle class families and in general had been relatively sheltered from the economic impact of the depression and the imminent threat of world war.

The faculty at Bennington believed that its foremost duty was to acquaint students with the nature of their contemporary world. The year 1939 was to see the first graduating class of the institution.

Problem

The major problem to be investigated was the manner in which the patterning of behavior and attitudes varied with different degrees of assimilation into the community. The community here refers to the collective community at Bennington College, as opposed to the community of the village, four miles distant from this location. Most individuals at Bennington had noticed a marked change in political and economic

alism among the students. This phenomenon tended to be stratified
 classes, with most freshman being more conservative than liberal
 most seniors being more liberal than conservative.

Our investigators' objective was to gain insight into the influence
 reference groups as they might have a bearing upon liberal - conser-
 ve attitudes and attitude change toward public affairs. Such a
 was selected because of two major reasons: one was the fact that
 ds of attitude measurement were readily available. The other rea-
 as the unusually high degree of concern in this community, at this
 over a rather wide range of public issues.

theses

From what literature is available in this area, I was able to ex-
 only one formally stated hypothesis:

Membership in established groups involves the taking on
 of whole patterns of behavior and attitudes.¹

The overriding thesis of the study might best be summarized as
 ws:

In a membership group in which certain attitudes are
 approved, individuals acquire the approved attitudes to the
 extent that the membership group serves as a positive point
 of reference.²

This statement, however, does not imply that no reference groups
 than the membership group are involved in attitude formation, nor

¹E. Maccoby, T. M. Newcomb; Readings in Social Psychology; New
 Holt Rinehart Winston; 1958, pp. 265-275.

²Ibid, p. 265.

imply that the use of membership groups in the adoption of ap-
 titudes is mandatory. Variations in degree and manner of
 ship must be known to explain individual variation in attitude
 n.

of Data Collection

itudes toward nine public issues were measured over the four
 iod using a five-point Lickert scale labeled Political and Econ-
 ference (Progressiveism). The scale dealt with issues such as;
 ment, public relief, civil rights, and the rights of organized
 s made public by the New Deal. Attitudinal characteristics
 pressed in terms of averages.³

ormation concerning reference groups was obtained both directly
 subjects themselves by interview, and indirectly from other
 and teachers. A reputation index was also computed based upon
 quency with which individuals were named by their fellow students.
 als were rated by their fellow students in five areas dealing
 ntification with the community, minus the number of times they
 ed as dealing negatively with community attitudes. The reputa-
 lex was informative as to degree and direction of tendency to
 total membership group as a reference group.

determine, however, the group to which the individual refered
 in the formation of attitudes necessitated the construction of

id., p. 128.

ex to measure individual divergence from his membership group
des.

To do this, select items were extracted from the Political and
ic Progressiveism scale and administered to the various classes
students. Informal investigation had revealed a marked trend from
vatism with rise in class standing, therefore each class was
ed as a measure of theoretical central tendency of response.

These data were additionally supplemented by direct information
ed in interviews with seniors in three consecutive classes, just
to graduation to determine their congruity with class majorities.
Information was also available from college personnel files and
the college psychiatrist.

Twenty-four non-conservative and nineteen conservative seniors were
ed for intensive study. Sample members were classified according
various computed indicies and eight sets of seniors were identi-
all in each having similar attitude and divergence indices and
r reputations for community identification. There was found to
a characteristic pattern of relationship between membership group
ference group within each section.

Findings

The eight sets of seniors classified on the basis of the computed
s were analyzed by category with the resultant findings:

Category I: Conservatives, reputedly negativistic, aware of their
relative conservatism. Most of these students were considered

and resistant by their teachers, and according to the college
rict appeared overly dependent upon one or both parents. All
students interviewed described their major hopes upon entering
in terms of social rather than academic prestige. All felt
y had failed in accomplishment of this goal.

of this group of individuals, the community served as a reference
a negative sense and the home and family group in a positive

egory II. Conservatives, reputedly negativistic, unaware of
n relative conservatism. All of these seniors were identified
teachers to be stubborn or resistant. All had low prestige
. In interview all admitted pre-college rebuff, ostracism,
tion. All described their hopes upon entering college as that
y making friends rather than seeking prestige. All felt that
met with some success. Most admitted to association with only
circle of friends and indicated resentment from outside group
s.

of these individuals, negativistic in the sense of being near iso-
rather than rebels, the community does not serve as a reference
r public attitudes. Their main group of reference was the home
ly group, in addition to their small group of friends.

egory III. Conservatives, not reputedly negativistic, aware of
n relation non-conservatism. Sixty percent of these individuals
cribed as being cooperative and eager, none were described as
ubborn or resistant. Eighty percent were considered as being

average in prestige and retained close parental identification. Interviewed had definite ambitions for leadership and felt that had been relatively successful. All were aware of conflicting attitudes between parents and the college community. All adopted the dominant attitudes of their parents.

Within this category, the total membership group does not serve as reference group for public attitudes, but does so serve for most purposes. All had resolved the conflict between parents and college community. Parents attitudes usually prevailed.

Category IV: Conservatives, not reputedly negativistic, unaware of their own relative conservatism. All here are consistently described by members as being conscientious and cooperative. Sixty percent were considered overly docile and submissive to authority. All were characterized by feelings of inferiority. All were low in prestige and leadership choice. All indicated pre-college anxieties as to their fit in the college community. All felt they fit better than they had anticipated.

Here, the reference group for public attitudes is not the membership group. Individuals here refer to the membership group for few, if any purposes. Their reference groups are almost solely limited to the college and family group.

Category V: Non-conservatives, reputedly community identified, unaware of their relative non-conservatism. All of these individuals were considered highly independent by teachers, especially in intellectual endeavors. Eighty-six percent were considered perfectionistic

ly conscientious. Eighty percent were high in prestige and all group members, all except one individual who had leadership positions. All had come to terms with parental attitudes, all took attitudes seriously.

For these individuals, the total membership group serves as a reference group for attitude formation and development of attitudes and other aspects, although not the only one. For those whose parents were conservative, parents were seen as negative reference groups from which participation was gained via liberal attitudes. For several of these the college community served as a bridge to outside liberal groups as sources of reference.

Category VI: Non-conservatives, reputedly community identified, aware of their own relative non-conservatism. All of these individuals were rated as enthusiastic and eager. Seventy-five percent were rated as high in prestige and the remaining twenty-five percent classified at about average prestige. None were considered as dependent upon parents. All came to college with leadership positions and each expressed satisfaction with their status in the community.

For these again the membership group serves as the reference group for their affairs. They differ from the previous category in that they are more sure of themselves. They tended to repudiate radicalism.

Category VII: Non-conservatives, not reputedly community identified, aware of their own relative non-conservatism. Each individual was described as highly independent and critical minded. A high

are reported as intellectually outstanding. All describe conditions upon entering college as being oriented to academic achievement rather than social prestige. One third were rated high in area of social prestige. Over one-half reported severe emancipating off parental shackles.

For these individuals, the reference group was not exclusively membership group. Because of their critical mindedness, they evaluate a situation in terms of both membership and reference

Category VIII: Non-conservatives, not reputedly community identified, not aware of own relative conservatism. Each here is considered intelligent and enthusiastic although somewhat unsure of herself and dependent upon instructors. They are all somewhat described as such and only one-third are above average in prestige. They evaluate their ambitions in terms of social acceptance rather than intellectual prestige.

These students have come to identify with the community and to have an attitude as does the community. Home and family serve a secondary purpose as a referent group, either positively or negatively. Because of their need to be accepted, they must often refer to the membership group.

Conclusions and Generalizations

One of the inferred conclusions resultant from this study was the confirmation of the observation that with increasing exposure to the

ve environment the individual's attitude tended to be changing
servative to liberal based upon the general change in the
al's referent group.

the sake of brevity, a summary of conclusions and generaliza-
all be presented. In this community, as in others, all individ-
ong to the membership group in total. This group, however, is
ys the point of reference for every form of social adaptation.
acquisition of attitudes is then regarded as a function of re-
oneself to some group or groups positively or negatively. The
of attitudes to one group negatively, leads to the referring
to the other group positively, i.e., attitudes are dually
ed.

typical individual usually refers himself to his membership
the formation of his attitudes although he often utilizes
groups for his total perspective. Should the membership group
e as a reference group at all it cannot be concluded that at-
development is not a function of belonging to a total membership

findings of the Bennington Study seem to support the thesis
a community characterized by certain approved attitudes, the
al attitude development is a function of the way in which he
himself to both the total membership group and to the one or
ference groups.

APPENDIX III

Non-Metropolitan Area Development Schedule

Respondent _____ Interviewer _____

Address _____ Date of Interview _____

How long have you lived here? _____ What is your marital status? married _____

single _____

How many people presently reside in this household? _____ divorced _____

separated _____

How many rooms do you have? _____ widowed _____

1.) Present Members	Sex	Age	Highest grade completed	Of those children who have left home where are they living now?
Household Head				
Lady of the House				
Children				
Others (state each)				

2.)	Occupation MHH	For whom do you work	How long have you worked there	How far is that from here
What is your:				
How many jobs have you held in past 10 years?				
What is your spouse's occupation if she's worked in past year?				

3.) Of those children who have left home, what do you think is their major reason for leaving? _____

4.) Do you think they would like to return if given the opportunity? _____

5.) How many times have you and your family moved in the last 10 years?

From?	To?	Major reason for move?

6.) Are you planning to move from this area in the near future? _____

7.) Why? (main factor) _____

8.) While in school did you hold any class office? _____

9.) What were they? _____

10.) Have you ever been appointed or elected to political office? _____

(If "yes" ask)

11.) What office	Location	Nature of position (elected or appointed)	Length

Do you subscribe to any of the following publications? Readers Digest _____
 Time _____
 Do you take a newspaper (s)? _____
 Colliers _____
 Holiday _____
 Look _____
 National Observer _____
 Life _____
 Dakota Farmer _____
 Ladies Home Journal _____
 Specify others _____

Where published? _____

A.) Do you own lakeside property on Big Stone Lake? _____

B.) If the level of the lake is raised, do you expect compensation from the power company? _____

In which of the following organizations do you and/or you family participate:

	H.H.H.	Spouse	Children	Sex	Held Office	Held office
American Legion						
A.W.						
Clubs						
Farmer's Union Co-Op						
Access						
Recreatics						
Ladies						
Extension Clubs						
Old Agency						
O.						
n Bureau						
nice						
ber of Commerce						
anis						
ary						
ns						
onic Order						
ghts of Columbus						
s						
uts (boy or girl)						
nious						
er (specify)						

What do you and your family do as major forms of recreation?

	In the Home	Out of the Home
ents		
Idren		

With which area community do you primarily associate yourselves?

Stone City Milbank Ortonville (Minn.) Other (specify) _____

Would you say this area has: Grown _____ Lost _____ or stayed the same _____ in population in the last 10 years?

What major factor do you think was the cause of this? _____

Do you feel the economic conditions in this area are: Poor _____ Fair _____
 d _____ or Excellent _____?

Are there any members of your family eligible to work in the proposed power plant during construction phase _____, or during the operations phase _____?

Do you think they would like to work there? _____

) Lately, there has been much discussion and controversy over the subjects of air and water pollution. In your opinion, do you feel:

South Dakota has a pollution problem, and if so how would you rate it?

Rate at all ☐ some ☐ tolerable ☐ serious ☐ or critical? ☐

Do you feel this area has a pollution problem, and if so how would you rate it?

Rate at all ☐ some ☐ tolerable ☐ serious ☐ or critical? ☐

) (ask only if respondent feels immediate area has a pollution problem)

What do you feel is the major source of pollution in this area?

Industry ☐ agriculture ☐ municipalities ☐ lake shore cottages ☐ litter. ☐

) Material possessions: Do you own:

yes no

Central heating system

Air conditioning (Central Window)

Water piped into house

Toilet facilities

Complete with bath and shower

Refrigerator

Ice freezer

Washing machine

Drying machine

Automatic dishwashing machine

Television (Number of sets) (Black and white) (Color)

Radio (Number)

Record player (Stereo) (Monaural)

) Since our knowledge of this area could never approach that of a local resident, we would appreciate your help in responding to the following questions:

Are you aware of:

yes no

Proposed construction of an electric power plant in this area?

Proposed changes to be made in the level of Big Stone Lake and present flood control operations?

Major environmental problems in this area?

Major community problems in this area?

Function of the Minnesota - South Dakota Boundary Waters Commission?

Rural industrial development programs in this area?

Megawatt out-put of the proposed power plant?

Megawatt out-put of the present power plant?

Exact location of the proposed power plant?

Primary fuel to be used in the plant's operation?

	What is your:		Are you a church member	How far is that from here	Do you hold a church office
	religious preference	denomination	yes no		yes no
			To which church do you belong?		which office
House					
Children					

A.) How long have you been a member of your present congregation or parish? _____

Do you attend church: 4 times/mo. or more 2 times/mo. or more seldom never

X. We would like you to indicate the extent of your agreement or disagreement with each of the following statements:

A.

	Strongly Agree	Mildly Agree	Undec- ided	Mildly Disagree	Strongly Disagree	
1.	SA	MA	U	MD	SD	I feel the future outlook for the area's economy is dependent upon the Big Stone power plant
2.	SA	MA	U	MD	SD	I feel many new jobs will be created when the power plant comes
3.	SA	MA	U	MD	SD	I feel people will be more financially secure when the plant is built
4.	SA	MA	U	MD	SD	I feel much additional money will be spent in our community when the plant is built
5.	SA	MA	U	MD	SD	I feel people who have left the area to get jobs might return when the plant is built
6.	SA	MA	U	MD	SD	I feel the power plant might cause some new businesses to open
7.	SA	MA	U	MD	SD	I feel the power plant is a necessity for the economic future of this area
8.	SA	MA	U	MD	SD	I feel the power plant will favorably alter the tax structure of this area
9.	SA	MA	U	MD	SD	I feel we have needed such industry in the community for a long time
10.	SA	MA	U	MD	SD	I feel the power plant will bring most of its own employees with it

B.

1.	SA	MA	U	MD	SD	I feel the proposed power plant will damage Big Stone Lake
2.	SA	MA	U	MD	SD	I feel the power plant would adversely affect recreational facilities in this area
3.	SA	MA	U	MD	SD	I feel recreation would no longer be a major attraction after the plant's completion
4.	SA	MA	U	MD	SD	I feel air pollution would become a major problem after the plant's completion
5.	SA	MA	U	MD	SD	I feel plant operation would seriously damage the quality of the environment
6.	SA	MA	U	MD	SD	I feel power plant operations would hurt farm operations
7.	SA	MA	U	MD	SD	I feel plant location would hurt the area's conservation practices
8.	SA	MA	U	MD	SD	I feel the South Dakota side of Big Stone Lake would be the most adversely affected by the plant's location

C.

1.	SA	MA	U	MD	SD	I feel the community will have to expand to accomodate the new people when the plant is being built
2.	SA	MA	U	MD	SD	I feel we now have enough hospital facilities to serve the additional people
3.	SA	MA	U	MD	SD	I feel our police department is presently large enough to serve the additional people
4.	SA	MA	U	MD	SD	I feel our fire department is large enough to absorb the anticipated increase
5.	SA	MA	U	MD	SD	I feel our present supply of drinking water will be sufficient
6.	SA	MA	U	MD	SD	I feel our present sewage facilities are sufficient enough to service the new people
7.	SA	MA	U	MD	SD	I feel expansion of our churches will be necessary
8.	SA	MA	U	MD	SD	I feel our school facilities will have to be expanded
9.	SA	MA	U	MD	SD	I feel many additional apartments and houses will have to be built
10.	SA	MA	U	MD	SD	I feel after the construction force leaves, we will have a surplus in the above service areas
11.	SA	MA	U	MD	SD	I feel if we have a surplus of facilities, it will hurt the area

D.

1.	SA	MA	U	MD	SD	I feel most public officials are not really interested in the problems of the average man
2.	SA	MA	U	MD	SD	I feel these days a person doesn't really know whom he can count on
3.	SA	MA	U	MD	SD	I feel nowadays a person has to live pretty much for today and let tomorrow take care of itself
4.	SA	MA	U	MD	SD	I feel in spite of what some people say, the lot of the average man is getting worse, not better
5.	SA	MA	U	MD	SD	I feel it is hardly fair to bring a child into the world with the way things look for the future
6.	SA	MA	U	MD	SD	I feel there is little chance of finding real happiness in life today
7.	SA	MA	U	MD	SD	I feel most people really don't care what happens to the next fellow
8.	SA	MA	U	MD	SD	I feel it is very important to save for tomorrow
9.	SA	MA	U	MD	SD	I feel luck plays an important part in what happens to people
10.	SA	MA	U	MD	SD	I feel if one is born poor he might as well accept it, as there is no getting out

Y. We would like you to indicate the extent of your agreement or disagreement with each of the following statements:

A.

1.	SA	MA	U	MD	SD	I feel this area has a lot to offer in terms of the recreational facilities
2.	SA	MA	U	MD	SD	I feel most people around here use the recreational facilities quite frequently
3.	SA	MA	U	MD	SD	I feel Big Stone Lake is about the most important of the recreational facilities
4.	SA	MA	U	MD	SD	I feel were it not for the recreational facilities, many people would move
5.	SA	MA	U	MD	SD	I feel swimming is one of the most important forms of recreation
6.	SA	MA	U	MD	SD	I feel fishing is a favorite sport of most around here
7.	SA	MA	U	MD	SD	I feel picnicking and camping are important forms of recreation, especially in this area
8.	SA	MA	U	MD	SD	I feel one of the major reasons I am living in this area is the availability of outdoor recreation

B.

1.	SA	MA	U	MD	SD	I feel our local government is usually very efficient
2.	SA	MA	U	MD	SD	I feel for the most part there is a scarcity of employees in the city or town government
3.	SA	MA	U	MD	SD	I feel local government is progressive and responsive to change
4.	SA	MA	U	MD	SD	I feel our local government is agrarian oriented
5.	SA	MA	U	MD	SD	I feel our local government is overly politically oriented
6.	SA	MA	U	MD	SD	I feel our local government is in tune with environmental problems
7.	SA	MA	U	MD	SD	I feel only the wealthy people get elected to political office

C.

						I feel the economy of this area is:
1.	SA	MA	U	MD	SD	Highly stable
2.	SA	MA	U	MD	SD	Overly oriented to the farmer
3.	SA	MA	U	MD	SD	Progressive and in tune with the times
4.	SA	MA	U	MD	SD	Oriented to future opportunity for this area
5.	SA	MA	U	MD	SD	Geared to handle environmental problems
6.	SA	MA	U	MD	SD	Providing sufficient incentive to youth to remain in the area

SA	MA	U	MD	SD	Providing sufficient employment opportunity for all who really want to work
SA	MA	U	MD	SD	Giving the majority of people a favorable standard of living
SA	MA	U	MD	SD	I feel our hospital facilities are presently adequate for our needs
SA	MA	U	MD	SD	I feel our police department is sufficiently staffed and efficient
SA	MA	U	MD	SD	I feel our fire department is efficient and giving us good fire protection
SA	MA	U	MD	SD	I feel our sewage facilities are adequate for our needs
SA	MA	U	MD	SD	I feel the area communications systems are giving us good service
SA	MA	U	MD	SD	I feel the local stores and consumer services in the community are meeting the needs of the people adequately
SA	MA	U	MD	SD	I feel most of what anyone could need can be bought in the downtown stores
SA	MA	U	MD	SD	I feel our churches are sufficient to serve all religious denominations
SA	MA	U	MD	SD	I feel we have enough ministers to adequately staff the churches
SA	MA	U	MD	SD	I feel people in this area are generally very religious
SA	MA	U	MD	SD	I feel most people in the area attend church regularly
SA	MA	U	MD	SD	I feel our churches are being efficiently managed
SA	MA	U	MD	SD	I feel the religious needs of the people in the area are being met adequately
SA	MA	U	MD	SD	I feel we have enough schools and educational services in the area to meet the need of the children
SA	MA	U	MD	SD	I feel the teachers in the schools are well trained and competent
SA	MA	U	MD	SD	I feel our children are receiving a quality education
SA	MA	U	MD	SD	I feel our school board is progressive and well aware of future needs
SA	MA	U	MD	SD	I feel our educational services receive adequate community support
SA	MA	U	MD	SD	I feel we at present have a potentially serious water pollution problem
SA	MA	U	MD	SD	I feel air pollution is a problem in this area

3.	SA	MA	U	MD	SD	I feel most of our pollution is the result of agricultural operations
4.	SA	MA	U	MD	SD	I feel conservation practices help to control pollution
5.	SA	MA	U	MD	SD	I feel an increase in the adoption of conservation practices by farmers would greatly help reduce pollution
6.	SA	MA	U	MD	SD	I feel thermal pollution is a definite factor which might reduce the quality of the environment
7.	SA	MA	U	MD	SD	I feel industrial pollution has long threatened the quality of the environment

H.

1.	SA	MA	U	MD	SD	I feel most people in this area are very friendly
2.	SA	MA	U	MD	SD	I feel our people care about their neighbors
3.	SA	MA	U	MD	SD	I feel our people can always be counted on
4.	SA	MA	U	MD	SD	I feel people here will always help a friend in need
5.	SA	MA	U	MD	SD	I feel people here are honest and straight forward

I.

1.	SA	MA	U	MD	SD	I feel long term progress is more important than immediate benefit
2.	SA	MA	U	MD	SD	I feel we have too many youth programs
3.	SA	MA	U	MD	SD	I feel schools are as good as they are in most communities
4.	SA	MA	U	MD	SD	I feel we have a sufficient amount of social services
5.	SA	MA	U	MD	SD	I feel the spiritual needs are adequately met by the churches
6.	SA	MA	U	MD	SD	I feel there are sufficient recreational facilities
7.	SA	MA	U	MD	SD	I feel adult education programs should be an essential part of the local school programs
8.	SA	MA	U	MD	SD	I feel the individual has a responsibility to his neighbor
9.	SA	MA	U	MD	SD	I feel the church members are better citizens
10.	SA	MA	U	MD	SD	I feel we have a good Chamber of Commerce
11.	SA	MA	U	MD	SD	I feel we have good city government
12.	SA	MA	U	MD	SD	I feel the main problem we face is high taxes
13.	SA	MA	U	MD	SD	I feel good citizens help minority groups with their problems

RECREATION SCALE

TYPE:	WHERE			PARTICIPATION				WHY			PERCEIVED EFFECT OF RURAL INDUSTRIAL DEVELOPMENT ON RECREATION FACILITIES		
	IMMEDIATE AREA	LESS THAN 50 mi.	MORE THAN 50 mi.	NEVER	SELDOM	FREQUENTLY	REGULARLY	ENJOYMENT	CONVENIENT	ECONOMIC	DAMAGING	NO EFFECT	BENEFICIAL
SWIMMING													
BOATING													
FISHING													
ICE FISHING													
WATER SKIING													
ICE SKATING													
HUNTING													
CAMPING													
PICNICS													
GOLFING													
TENNIS													
BICYCLING													

DO YOU OWN:	YES	NO	TYPE:	TRAILER	TENT	CAMPER	PICK-UP	CAMPER:OTHER
CAMPING TRAILER								
TENT								
STATION WAGON USED FOR CAMPING								
HOUSE CAMPER								

LIST THE CAMPING EQUIPMENT YOU OWN: (stove, lanterns, etc.) _____

DO YOU OWN YOUR OWN HOME? _____ DO YOU RENT YOUR HOME? _____

INCOME: (please circle one letter)

- | | | |
|--------------------------------|--------------------------------|----------------------------------|
| a. less than \$2,500 | d. between \$5,000 and \$6,499 | g. between \$10,000 and \$11,999 |
| b. between \$2,500 and \$3,499 | e. between \$6,500 and \$7,999 | h. between \$12,000 and \$14,999 |
| c. between \$3,500 and \$4,999 | f. between \$8,000 and \$9,999 | i. over \$15,000/annum |