



Attitudes about coal development and the accompanying environmental impact in the Decker-Birney study area of eastern Montana : implications for education
by Milton Glenn Parsons

A dissertation submitted in partial fulfillment of the requirements for the degree of DOCTOR OF EDUCATION
Montana State University
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Abstract:

The purpose of this study was to identify attitudinal predilections and to develop a typology of environmental orientations held by residents of the three counties of eastern Montana (Big Horn, Powder River, and Rosebud) that will be affected if strip mining of federally owned coal is allowed in the Decker-Birney Area. It was believed the typologies would aid in better understanding the philosophical motivations of residents as they wrestle with the pros and cons of coal development and help develop better public education strategies.

A two hundred and eighty-eight item questionnaire composed largely of five point Likert-type statements was developed by an interdisciplinary team of researchers composed of the author, Dr.

Pat Jobs from the Department of Sociology at Montana State University, and Dr. Raymond Gold and members of his staff of the Institute for Social Science Research at the University of Montana.. Because of the interdisciplinary nature of this study and combination of purposes this questionnaire was developed to serve, only those questions the author developed or was involved in developing were discussed in this research.

A complete census by family unit was completed by the author for the 900,000 acre study area with 298 potential interviews being identified. An interview was defined as the person representing the family unit., A total of 259 interviews were completed for an 87 percent completion percentage. The Statistical Package for Social Sciences (SPSS), a system of computer programs , was selected by the researcher to exploit fully the descriptive data provided by the research. Two sub-programs, CODEBOOK and FASTABS, were used to process the data.

The CODEBOOK sub-program provided the relative frequency and percentages of distribution for each item on the interview schedule. The FASTAB program provided the chi-square statistic used to measure the degree of association between the ten socio-economic factors used in the study and the statements in the questionnaire.

Occupation of the head of the household and where respondents lived were found to be the strongest associations operating within the socio-economic variables. The agricultural and public occupations versus the private business and operations and construction occupations and the rural-farm versus town-non-agricultural divisions were the most discriminating associations. The socio-economic variables of age and years of residence in the Decker-Birney Area were found to be useful in identifying value differences between older and younger respondents and short term and long term residents. It was concluded that a large majority of respondents across all the occupations and in the rural and town places of residence opposed coal development and its resulting impacts. However, a consistently lower degree of opposition to coal development was found associated with those persons residing in town and employed in a private business or operations and construction occupation.

Two bio-medical computer programs, BMDP2M, cluster analysis of cases, and BMD07M, stepwise discriminant analysis were used to develop and test a typological classification system. Forty-one variables were used in the cluster analysis program to develop the typology. The typology was then tested by the stepwise discriminant analysis program using the F statistic. The .05 level of significance was set for the rejection of the null hypotheses.

In testing the hypotheses set forth in this study, all the alternative statements were accepted. This acceptance indicated that three "types" of people were identified in the population that had different orientations about the area and the pending development. Twenty-one percent of the 259 respondents were classified in the "boomer type," 51 percent of the 259 respondents were classified in the "anti-strip mine type," and 28 percent of the 259 respondents were classified in the "developer protector type." The "boomer type" was described as having a pro-development and pro-strip mine orientation. The "anti-strip mine type" was described as having an antidevelopment orientation. The "developer protector type" was described as the group willing to see development progress if strong controls were administered and supervised.

Inconsistencies were seen to exist in people's understanding about what coal development entails and these inconsistencies point to the role education could play in the area. A comprehensive educational plan spanning all segments of the population and providing the nucleus of a strong group action program is needed. Such a plan would help to bring the Decker-Birney Area residents regardless of occupations, places of residence and attitudinal predilections together and working towards a common goal of planning for the best options available for the area.

DEDICATED TO THOSE WHO CARE,

WHO MAKE A DIFFERENCE

Since the coal will be dug, let us set up every safeguard, guided not by commercial interests but by reason and our love for the land we have so often betrayed. Let us enact laws with teeth, directed by dispassionate and informed minds. The strictest laws will not discourage development. Industry howls about the impossible and forced to, then does it -- an accomplishment much to its credit.

Let us engrave on our minds that our first concern must be water, soil and air. We can't stay progress, but we can guide it. As we do, so can we reflect that every choice entails an onus, that every decision leaves the residue of regret, that the path ahead always leaves behind something dear. (High Country News, 1974:3)

(A. B. Guthrie, Jr., Pulitzer Prize Novelist)

175

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IMPLICATIONS FOR EDUCATION

by

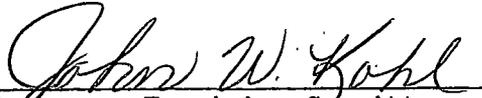
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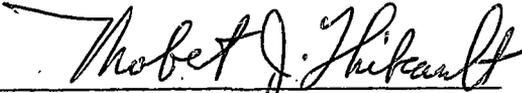
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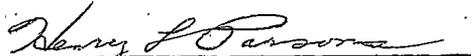
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TABLE OF CONTENTS

	Page
LIST OF TABLES	viii
LIST OF FIGURES	xvi
ABSTRACT	xvii
Chapter	
1. INTRODUCTION	1
Statement of the Problem.	2
Need for the Study.	3
Questions to be Answered.	8
General Procedures.	8
Statistical Analysis.	9
Limitations of the Study.	10
Definition of Terms	11
Summary	12
2. REVIEW OF RELATED LITERATURE	
Introduction	14
A Look at Coal Development with A Historic Perspective.	14
Coal Development in Montana	23
Description of Montana's Rural Population.	28
Decker-Birney Study Area	31
Summary	39
3. PROCEDURES	41
Introduction	41
Population Description and Sample Selection.	42
Method of Collecting Data	44

Presentation of Research Conducted	46
Experimental Design.	48
Data Organization for Analysis	51
Statistical Hypotheses	52
Analysis of Data	53
Summary.	57
4. RESULTS.	58
Introduction	58
Socio-Economic Characteristics of the Population	58
Age, Sex, Marital Status, and Place of Residence	59
Years Respondents Lived in the Area	60
Where Respondents Were Raised.	60
Number and Ages of Children.	60
Education Level of the Heads of the Households	61
Occupation of the Heads of the Households	62
Gross Family Income	62
Discussion and Interpretation of General Questions	63
Discussion and Interpretation of the Planning Questions.	98
Interpretation of Strip Mining Questions	190
Summary of the Socio-Economic Variables Associations Identified.	260
Introduction	260
Sex of the Respondent.	261
Age of the Respondent.	262
Where Respondents Were Raised.	263

Years Lived in the Decker-Birney Area	264
Marital Status.	265
Number of Children in the Family.	267
Gross Family Income	268
Education Level of the Head of the Household	268
Occupation of the Head of the Household and Where Respondents Live.	269
Development of the Typology and Testing the Hypotheses.	273
Discussion of the Forced Classification	276
Introduction of the Description of the Types Within the Typology	293
Socio-Economic Characteristics of the Three Types.	294
Comparisons of the General Planning and Strip Mining Questions as Seen by the Three Types of Respondents.	301
General Questions	301
Planning Questions.	302
Strip Mine Questions.	307
Summary of the Three Types	310
Summary	317
5. CONCLUSIONS, IMPLICATIONS FOR EDUCATION AND RECOMMENDATIONS	320
Introduction.	320
The Study and Its Conclusions	321
Implications for Education.	326
Recommendations	329
Suggestions for Further Study and Uses of the Data.	329

APPENDICES

Appendix A: Cover Letter 332
Appendix B: Questionnaire and Responses. 333
Appendix C: Questions Used to Develop Typology 400

REFERENCES CITED 408

LIST OF TABLES

Table	Page
1. Mineral ownership by acres	5
2. Possible levels of coal development	7
3. Montana's population of incorporated and unincorporated places	28
4. Breakdown of family units interviewed.	44
5. Question and category assigned	47
6. Questions included as the discriminating variables of the cluster analysis on cases program	50
7. Distribution of children according to age group.	61
8. Gross family income before taxes	63
9. This part of Montana has just about everything that is necessary for a happy life	65
10. Of all the places I have lived, this part of Montana is the most desirable	67
11. We have an excellent school system	69
12. This is a very safe place to live	71
13. My living conditions here leave a lot to be desired.	73
14. This is a good place to bring up children.	75
15. People who live around here are more helpful than they are in most places	78
16. The scenic resources of this area are being destroyed as the result of a variety of factors	80
17. Industries should be forced to shut down if they fail to meet governmental pollution standards.	81

18.	One person's right to a clean environment is not as important as another's right to gainful employment.	83
19.	The opinions of what the energy crisis is	85
20.	In general, and as a rule, the people who receive energy from coal should pay the local social costs ("people pollutions," adverse affects, etc.)	87
21.	In general, the Custer National Forest resources are being well managed.	88
22.	How important is the beauty of the area	90
23.	How important is the inheritance.	92
24.	How important are deep social roots	94
25.	How important is a way of life.	97
26.	With proper planning, I do not think an increase in population will negatively effect this area	99
27.	An adult education program would be useful.	101
28.	Additional counseling services in this area would be useful.	104
29.	A system of paved roads into and out of this area	106
30.	Concentrating future building in a small number of more urbanized areas and limiting additional development elsewhere	109
31.	How would you feel about a moratorium for a limited time on further leasing of state and federal coal lands to energy companies	111
32.	How would you feel about a moratorium for a limited time on building any more power plants in this area.	114
33.	How would you feel about a moratorium for a limited time on the development of new strip mines in this area. . . .	116
34.	How would you feel about a moratorium for a limited time on additional railroads, power lines, or pipe lines	

	associated with coal development	118
35.	Even when carefully controlled, industrialization is likely to upset a community.	120
36.	State professional planners should not be involved with development in Montana	122
37.	Federal professional planners should not be involved with development in Montana	124
38.	If there is going to be additional development around here, individual communities rather than state or federal governments should control and conduct it.	128
39.	Not much information concerning mining and related developments is being made available to the general public	130
40.	As badly as we need new industry and jobs, we cannot afford to sacrifice our clean air and beautiful scenery to attain them.	131
41.	Where natural resources are privately owned, neither neighbors nor government should have any say over how the natural resources are used	134
42.	Who should be empowered to determine whether or not stripped land has been truly reclaimed.	137
43.	Decisions about coal related developments should be made on economic grounds only; consideration need not be given to effects on life styles and values	139
44.	The need of coal by the nation is one important consideration on decisions to develop Montana's coal resources	142
45.	Assuming that Montana is obliged to help the rest of the nation to meet growing energy needs, there remains the question of the reasonable limits of Montana's obligation. That is, how much coal development in Montana is enough, how much is too much	144
46.	In general, and as a rule, who pay the local economic costs of industrialization of coal resources (e.g., expansion of	

law enforcement, public health, and educational services	147
47. Montana laws are sufficiently strict and enforceable to permit continued power plant construction in this area. . .	149
48. We owe it to the rest of the U.S. to generate electricity here and transmit it to them.	150
49. Too little attention is being paid to the social costs of coal development which accompany whatever economic benefits coal development is bringing to Rosebud County.	152
50. In general, Montanans who live outside of the area where coal resources are being developed are poorly informed about what is actually happening in this area	155
51. Power companies should never be granted the right to use eminent domain to obtain rights of way for power lines. Instead, a negotiation procedure should be used, one which allows each landowner to have the final word concerning the use of his land	156
52. We owe it to the rest of Montana to develop more industry for the state	158
53. Because of industries have to be competitive, it is unfair to expect them to tell the public about their expansion plans	161
54. Decisions about whether to permit further coal mining and power generation should not be influenced by people like me	163
55. Decisions about the rate at which further coal mining and power generation should be permitted should not be influenced by people like me	166
56. Decisions about whether to permit further coal mining and power generation will not be affected by what people in this area think should be done, but by the pressures exerted by industrial giants	169
57. Your family ties will be affected by the coal development and the population influx.	170

58.	Power and coal companies should be required to reveal their long-range plans so that state and local officials can evaluate the plans	172
59.	Units 3 and 4 would affect the water quality of the area	174
60.	The building and operation of units 3 and 4 would affect the air quality of the area in general	176
61.	The opinions on building power generating plants 3 and 4.	179
62.	We Montanans need more electricity and we should obtain it as Montana Power suggests we should, by building additional power generating facilities at Colstrip.	183
63.	Units 3 and 4 should be built close to those who will use most of the electricity which these units will generate. .	185
64.	Any expansion of coal development within the area would directly benefit the planning area's residents	187
65.	Any expansion of coal development within the Decker-Birney planning area will benefit the larger outlying municipalities such as Sheridan, Wyoming, or Hardin, Montana, more than the residents within the planning area.	189
66.	Since the Nixon administration is pushing very hard for energy self-sufficiency by 1980, Montana coal should be mined	191
67.	The choice for strip mining in agricultural areas means there will be less food production both now and in the future	193
68.	None of us has the right to interfere with the nation's need for western coal.	194
69.	The coal companies have no compassion for the land they are attempting to reclaim. They are doing it only because it is required by law.	196
70.	When mineral rights agreements were originally signed by land owners and the federal government, there was no concept	

of strip mining, but it was assumed underground mining might be done someday. Therefore, to strip mine the coal is to violate the original agreement between the landowners and the federal government 199

71. Residents are being made to feel guilty for trying to save their lives in the battle against the nation's alleged need for coal versus the life-style of a few. . . . 201

72. Too many rivers and creeks in Eastern Montana are being damned up due to strip mining 203

73. There are presently enough developed strip mines in Eastern Montana 205

74. Strip mining is compatible with your views of sound land use management. 207

75. Eastern Montana coal should be deep mined rather than strip mined 210

76. It is difficult to discuss the coal issue frankly, trustingly, and uninhibitedly with friends who hold opposing views, positions, or commitments concerning coal development. 212

77. There is a lot of effort going on by coal, power, and construction company officials to try to bluff, coerce, and even intimidate local residents into doing their bidding 213

78. Coal companies have established inroads, and beachheads in coalladen land by buying or leasing key places and then developing scare rumors and pincer movements to gain control over large chunks of the land for development. 216

79. Land condemnation notices have been issued to scare ranchers into giving up the fight against coal development. 219

80. Water that is needed for crops will be used up by the strip mining operations 221

81. In the long run, I am sure that area residents will be better off if the strip mines are developed 223

82.	A shift in political power from the ranchers to the new mining industrialists is becoming evident	225
83.	Coal development entails a sacrifice of recreational values and of future land use possibilities	227
84.	The removal of the coal seams may cause meadows to dry up and springs to disappear	229
85.	The development of strip mines will be one of the best things that ever happened in our part of the state. . . .	231
86.	Judging from what can be observed at Colstrip, Montana Power Company's advertised reclamation claims are certainly believable	233
87.	It is likely that the four power generating units and the related strip mining activities could operate in this area without harmfully affecting existing ranching operations.	235
88.	Strip mining would be just as expensive as deep mining if coal companies paid the full costs of such things as rendering the stripped land useless for agricultural people from their land for many years, putting the stripped land into low tax status for many years, and the like.	238
89.	Strip mining Montana coal is preferred to deep mining it because stripping is more economical for the coal company and safer for the miners.	240
90.	How can national energy needs best be met	243
91.	When can ranch land, which has been strip mined, be considered reclaimed.	244
92.	How concerned about the environment (air, water, plants, animals) do you think the power and coal companies in the Colstrip vicinity really are.	247
93.	How successful do you think the land reclamation program in this area is going to be	249
94.	When units 1 and 2 become operational, air quality will not be greatly affected	251

95.	When units 1 and 2 become operational, water quality will not be greatly affected	254
96.	Eastern Montana's resources (land, minerals, water, recreational opportunities) are being exploited by outsiders. .	256
97.	Most public lands within the Decker-Birney planning area have little agricultural development potential, therefore, they should be strip mined.	257
98.	Most public domain timber in the Decker-Birney planning area does not have the capability of being managed and if it is in the way of strip mining, it should be sacrificed	259
99.	F Matrix of P Values for Testing Equality of Group Means	275
100.	Stepwise Discriminant Analysis of the Boomer-Type Formed by the Cluster Analysis Program.	279
101.	Stepwise Discriminant Analysis of the Developer-Protector Type Formed by the Cluster Analysis Program	280
102.	Stepwise Discriminant Analysis of the Anti-Strip Mine Type Formed by the Cluster Analysis Program.	281
103.	Classification by Stepwise Discriminant Analysis of the Unclassified Cases Grouped by the Cluster Analysis Program	285
104.	A Comparison of Placement of Individuals in the Classification System by Cluster Analysis and Stepwise Discriminant Analysis.	292

LIST OF FIGURES

Figure	Page
1. Decker-Birney Location Map	4
2. Coal Ownership versus Surface Ownership Cartoon.	6
3. Agricultural Ecosystem	34
4. Ponderosa Pine Ecosystem	35
5. Sage - Shrub Ecosystem	36
6. Graphic Representation of Landowners Opposition to Strip Mining	40
7. Scattergram of types grouped by cluster analysis and plotted by stepwise discriminant analysis.	277
8. Scattergram of unclassified respondents denoted by cluster analysis and plotted by stepwise discriminant analysis	278

ABSTRACT

The purpose of this study was to identify attitudinal predelictions and to develop a typology of environmental orientations held by residents of the three counties of eastern Montana (Big Horn, Powder River, and Rosebud) that will be affected if strip mining of federally owned coal is allowed in the Decker-Birney Area. It was believed the typologies would aid in better understanding the philosophical motivations of residents as they wrestle with the pros and cons of coal development and help develop better public education strategies.

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in identifying value differences between older and younger respondents and short term and long term residents. It was concluded that a large majority of respondents across all the occupations and in the rural and town places of residence opposed coal development and its resulting impacts. However, a consistently lower degree of opposition to coal development was found associated with those persons residing in town and employed in a private business or operations and construction occupation.

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In testing the hypotheses set forth in this study, all the alternative statements were accepted. This acceptance indicated that three "types" of people were identified in the population that had different orientations about the area and the pending development. Twenty-one percent of the 259 respondents were classified in the "boomer type," 51 percent of the 259 respondents were classified in the "anti-strip mine type," and 28 percent of the 259 respondents were classified in the "developer protector type." The "boomer type" was described as having a pro-development and pro-strip mine orientation. The "anti-strip mine type" was described as having an anti-development orientation. The "developer protector type" was described as the group willing to see development progress if strong controls were administered and supervised.

Inconsistencies were seen to exist in people's understanding about what coal development entails and these inconsistencies point to the role education could play in the area. A comprehensive educational plan spanning all segments of the population and providing the nucleus of a strong group action program is needed. Such a plan would help to bring the Decker-Birney Area residents regardless of occupations, places of residence and attitudinal predilections together and working towards a common goal of planning for the best options available for the area.

Chapter 1

INTRODUCTION

Montana's future is very dependent on the utilization and proper management of its natural environment. Its streams and rivers are still comparatively pure, the air is still pristine, and the views spectacular. These physical attributes of the state are highly prized by its population.

Large-scale industrialization, typical of so many states, has passed Montana by, due largely to marketing reasons. The Montana State Department of Health and Environmental Sciences (1973:1) made the following analysis of Montana's industries:

Primary industries in Montana are almost totally extractive and the sites at which they exist are also the sites at which the greatest abuse of environmental quality and the greatest examples of social problems attendant upon unplanned industrialization are apparent. The redeeming characteristic of this situation is that these problems, while recognizable, are also still manageable.

The citizens of Montana and their legislative representatives are involved in the biggest period of decision making that has faced the state. The strippable reserves of coal in Montana calculated to be more than 42.5 billion tons (Matson, 1974:2) are the targets for massive development. The extraction of Montana's strippable coal is underway with five strip mines - Peabody, Western Energy, Knife River, Decker and Westmorland - operating in eastern Montana. These mines produced 10,721,413 tons of coal in 1973, and have a projected output of

14,357,000 tons for 1974, and 20,800,000 tons for 1975. (Montana Energy Advisory Council, 1974:28) As a result, the natural resources and environment of Montana are being placed in trade-offs between "goods and bads." As stated in the Situation Report of the Montana Coal Task Force (1973:6), the pollution-environmental problems facing Montana:

. . . . can be summed up in the proposition that benefits are generally produced jointly with detriments. To fully consider all trade-offs between 'goods and bads' when decisions are made is difficult because of scientific uncertainty, a (human) tendency to suppress negative information, and the consistent failure of our mixed market price system to properly assess and assign the costs of the 'bads.' Therefore, there may exist a tendency to overestimate the 'goods,' and according to economist Kenneth Boulding '. . . indulge in processes of production that produce too many bads per good.'

The present Montana need is for information. Factual knowledge on which to base decisions concerning the impact of this technology on Montana agriculture, environment, ecology, and economics is of vital importance to residents of the state. Planners and administrators need to know the public's opinion and to get private citizens to participate in the decisions to be made that will affect resource use.

Statement of the Problem

The purpose of this study was to identify attitudinal predilections and to develop a typology of environmental orientations held by residents of the three counties of eastern Montana (Big Horn, Powder River, and Rosebud) that will be affected if strip mining of

federally owned coal is allowed in the Decker-Birney Area. The typologies will aid in better understanding the philosophical motivations of residents as they wrestle with the pros and cons of coal development and help develop better public education strategies centered around energy issues.

Need for the Study

In May of 1972, the Bureau of Land Management and the United States Forest Service (Custer National Forest), in cooperation with the State of Montana, began the task of compiling a comprehensive multi-resource analysis of the Decker-Birney Study Area which is located in southeastern Montana. The Decker-Birney Study Area as shown on the location map Figure 1, encompasses 900,000 acres, approximately 79,000 of which are administered by the B.L.M., 153,000 acres by the U.S.F.S., and 48,000 acres by the State of Montana. The remaining surface acreage comprising approximately 620,000 acres of the unit is in private ownership.

The Decker-Birney area is considered one of the most valuable areas in Montana for low-sulfur coal. According to the Montana Bureau of Mines and Geology (B.L.M. and U.S.F.S., 1972:13) "there are 227,880 acres (12 billion tons) of strippable coal in the planning area." The federal government is coming under considerable pressure from private industry to allow development to take place. The reason for

