

# Opinion Formation on Environmental Protection: Understanding the Origins of Attitudes Toward Resource Enhancement and Protection in Iowa

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# Opinion Formation on Environmental Protection: Understanding the Origins of Attitudes Toward Resource Enhancement and Protection in Iowa

Lulu Rodriguez, Olan Farnall,  
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## Abstract

To explain the origins of attitudes toward environmental issues, three alternative explanations for increased concerns toward resource enhancement and protection in Iowa are examined. First, do values explain the popularity of environmental issues? Second, do people experience pollution problems in their local environment and then translate this direct experience into a positive attitude toward the overall importance of the protection of nature? And third, do citizens feel threatened by the increasing extent of the destruction of the state's environment? This study assesses the relative ability of these three models to explain the importance that citizens attach to environmental protection. It also attempts to provide insights into how a communication campaign can be designed. This on-going campaign, launched in 1995, was aimed to solicit citizen support for efforts to enhance and protect Iowa's natural resources. Surveying a randomly selected, statewide cross-section who answered a mailed questionnaire, researchers found that each of the three models contributed directly to the opinion-formation process, although the self-interest dimension displayed the strongest direct effect. This finding implies that campaign messages must be framed in a way that stresses the benefits of environmental protection on the individual. Following survey results, print and broadcast messages were designed to answer the oft-repeated question: "What's in it for me?"

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## **Introduction**

The passage in 1989 of the Resource Enhancement and Protection (REAP) Act created a 10-year, \$30-million-a-year program to improve Iowa's natural resources and outdoor recreational opportunities. The program was the culmination of years of work by a special legislative study committee on recreation, tourism and leisure. The committee had been given the directive to "protect more of Iowa's open spaces" (Szcodronski, 1994, p. 17).

The REAP program was designed originally "to put 10 percent of all land in the state of Iowa under some form of public protection by the year 2000" (Szcodronski, 1994, p. 17). But the program has grown beyond land protection. REAP's responsibilities have expanded to include conservation education, county conservation, soil and water enhancement, city parks and open space development, state land management, historical resource development, and roadside vegetation. In barely three years, the REAP program has made a name in resource enhancement work, receiving national recognition by winning the Renew America Award presented in Washington, D.C. in September 1992 to 19 other programs.

Yet funding from the state legislature is waning. Participants in the 1992 REAP congress, concerned with the downward trend of appropriations, recommended the development of a more active program of promotion, one which will showcase the diverse and widespread benefits from REAP. Specifically the REAP congress directed the Iowa Department of Natural Resources (IDNR) to "prepare a written communication plan to promote REAP both statewide and locally" (Brazelton, 1994, p. 7).

The IDNR, the agency responsible for overall coordination of REAP—and specifically within it, the Information and Education Bureau which is in charge of all communication efforts—was given the task of creating this public information campaign. But the Department is already too taxed: it already oversees a conservation education program, convenes regional assemblies and congresses, produces literature on various REAP programs, promotes the license plate effort, publishes the Iowa Conservationist, and works with the 21 subdivisions under the Director to make sure the programs are coordinated.

Still IDNR was able to produce signages promoting REAP projects in local sites, posters and full color ads in the Iowa Conservationist, and promotional direct mail pieces. It sent representatives to local project dedication ceremonies, to state fairs and to regional game

and fishing programs. It also published an eight-part feature series promoting REAP in the Iowa Conservationist.

Most of these efforts, however, were aimed at people and groups already sympathetic and usually quite knowledgeable about the REAP program. They seem to follow the pattern previous environmental campaigns elsewhere have taken—they lacked systematic formative research and/or follow-up studies (e.g., Finnegan, Bracht, & Viswanath, 1989). These experiences show that rigid one-way information flows have paralyzed most government efforts at environmental protection and conservation in the past. These experiences also indicate that while they take longer to crystallize, participatory approaches that heed public opinion stand a greater chance of succeeding and in shaping policy.

Realizing the long-term benefits of conservation education and capitalizing on its proximity to the state's leading inter-disciplinary environmental studies program, the REAP Alliance commissioned the Department of Journalism and Mass Communication at Iowa State University to launch a statewide promotion program which aims to rally public support for REAP and create demand for proper legislative funding. The public awareness campaign aims at "increasing environmental awareness, developing positive attitudes toward the enhancement and protection of natural resources, and effecting long-term behavioral changes towards resource protection" (Iowa Department of Natural Resources, 1992, p. 3). This will be done partly by developing professional quality media materials for use in the Iowa media. The project also provides a method to localize information and protection activities using environmental action packets distributed to all of Iowa's 99 counties. These packets provide guidelines for organizing community action groups and offer step by step instructions for accessing the media.

While the emergence of groups such as the REAP Alliance indicates increasing environmentalism in Iowa, it does not reveal the attitudinal roots of environmental issues. In order to be able to understand the political implications of the environmental movement, we need to know the origin of citizens' attitudes toward the environment. This study explains the opinion-formation process on resource enhancement and protection.

## **Problem Statement**

Testing the agenda-setting hypothesis regarding the environment in the media, Pecoud (1996) found that natural resource protection has emerged as a new dimension on Iowa's political agenda. There-

fore, it has become important to understand the origins of citizens' attitudes towards the environment. This research question becomes significant based on two fronts. First, communication practitioners are in need of solid theoretical bases for enduring campaigns, those that can provide guidelines as to the best appeals that will elicit the desired audience response. Second, an assessment of the duration, depth, and political implications of citizens' attitudes on environmental issues depends partly on the origins of these attitudes. For instance, people who place a high priority on protecting the environment mainly because they are disturbed by foul air in their neighborhood may no longer worry about the environment once the odor disappears. Contrary to this, if people are concerned with the environment because their value priorities have been remolded (Inglehart, 1977 & 1985), then environmental expectations cannot be met with incremental governmental actions.

Therefore, knowing the roots of citizens' attitudes towards the environment allows us to better understand the policy expectations of citizens. These insights also make it possible for campaigners to devise more realistic audience segmentation and summative evaluation strategies.

## **Theoretical Framework**

Towards the objective of explaining attitudinal origins, three alternative explanations for the rise of environmental concerns are examined.

**Self-interest model.** Do people experience pollution problems in their local environment, for example, and then translate this direct experience into a positive attitude toward the protection of nature? This first approach has been called the "self-interest" model (Sears, 1980; Sears & Citrin, 1982). Based on economic theories of rational citizens, the self-interest model holds that people become concerned with issues only if some external force impinges upon their life circumstances. The self-interest hypothesis argues that the increasing concern with the environment has its origin in the extent to which the local environment is polluted. Viewed in this light, citizens are selfish and worry about nature only because they experience the direct impact of ecological problems in their backyards.

**The sociotropic model.** Introduced by Kinder & Kiewit (1981), this model argues that citizens consider national circumstances as a basis in formulating opinions on issues. These authors suggest that one main difference between the sociotropic and self-interest models is the type of information people employ to form opinions. The

self-interest model suggests that people use information they obtain from their immediate experiences. In the sociotropic case, people use information that goes beyond their immediate issues (Kiewit, 1983).

Distinctions between these two models lead to several interesting questions. Are opinions largely shaped by a concern about the general condition of the nation as a whole or do personal experiences exercise the strongest impact upon the formation of opinions? Both of these models imply that citizens are first exposed to external stimuli and then develop an opinion. In other words, the initial stimulus in the opinion-formation process in these models comes from the societal context, whereas the initial stimulus in the value change models (see below) exists within people. Therefore, the self-interest and sociotropic models tap the impact of societal conditions on citizens' attitudes.

**Symbolic politics.** The third model is what Sears (1980) calls the "symbolic politics" approach which suggests that long-standing predispositions such as ideology and political beliefs exercise the strongest impact upon the opinion-formation process (see also Sears & Lau, 1983). According to this model, a person acquires stable reference systems during formative socialization years that from then on serve the individual as a guide through the complex world of politics. Confronted with the need to form an opinion on an issue, people resort to their long-held beliefs. Thus, this model explains, opinions are substantially shaped by one's pre-adult socialization years.

One such symbolic politics model which may explain the popularity of environmental issues is Inglehart's (1977, 1981, & 1985) model of generational value change. Studying the value priorities of Western Europeans, he notes a shift in emphasis on material goals to higher-order "post-material" objectives, one of which may be environmental sensitivity.

Inglehart's hypothesis, however, has been challenged on several fronts. Flanagan (1982), for instance, argues that Inglehart's model confounds two distinct dimensions: the shift of value priorities does not reflect a generational phenomenon, but a short-term reaction to contemporary political trends (Boeltken & Jagodzinski, 1985). Also common to these value shift models is the notion that increasing environmental concern lies in mechanisms within individuals. The condition of the environment (such as the true extent of pollution, for example) is neglected, which leads to the argument that environmental issues are popular because people have changed, and not because the quality of the environment has worsened.

In sum, three major models might explain what factors influence the opinion-formation process on environmental issues. The symbolic politics model emphasizes long-standing reference structures that substantially shape citizens' opinions on present-day issues. Inglehart's model of value change clearly fits this scheme since his model focuses on generational change and pre-adult socialization as the main cause for shifting value priorities. Accordingly, environmental issues have entered the political agenda because individuals are changing. The self-interest model, on the other hand, emphasizes the conditions of the local neighborhood as perceived by citizens to explain the emergence of concern towards the environment. The third model, the sociotropic hypothesis, posits that the publics are concerned with the environment of their nation as a whole and not just with their local backyards.

These models hold several implications for communication and information needs. First, each of the models places different demands on citizens' information-gathering-and-processing abilities. The symbolic politics and the self-interest approach require less investment in the process of collecting and analyzing information than the sociotropic approach. The self-interest approach merely requires citizens to be aware of the conditions of the environment in their neighborhood—a task that can be accomplished relatively easily. The symbolic politics model asks citizens only to have acquired some value structure during their socialization years, and to apply these frameworks to contemporary issues (Feldman, 1982). In contrast, the sociotropic dimension requires citizens to be active seekers of information about the condition of the environment within their nation as a whole. In this case, citizens have to undertake efforts to be informed about nationwide ecological issues.

A second major implication concerns the expectations each model creates about how the government ought to deal with ecological problems. Expectations based on self-interest alone are more likely to be satisfied by limited governmental action than expectations that originate from either value change or sociotropic approaches. Unlike those concerned solely with self-interests, citizens whose concerns for the environment are shaped by post-materialist value priorities will not stop worrying about the state of nature simply because their neighborhoods have been cleaned. Such expectations originate from a deeply rooted reference system that cannot be easily manipulated. Sociotropic concerns also require more governmental intervention because they are based on much sought-after information.

This study empirically tests which of these models comes closest in describing the origins of Iowans' concern for resource protection and preservation.

## Methodology

This baseline, statewide random population survey helps establish a framework for the development of a comprehensive public awareness and communication campaign that focuses on resource enhancement and protection within the state.

As part of a formative research plan, this survey was conducted to (a) identify target groups, their knowledge of and attitudes toward resource enhancement and protection in particular, and of environmental protection in general. The survey also served as (b) a tool to gather demographic as well as economic data and to identify institutional structures as they impinge on environmental education efforts. The survey thinned out the geodemographic as well as the psychographic profiles of target audiences and helped in formulating (c) a feasible audience segmentation strategy.

The results of this survey helped campaign implementors (d) determine appropriate messages and channels to reach the intended clientele. Ultimately, a synthesis of survey results will help design or formulate policy regarding environmental protection and conservation throughout the state.

The respondents for this study were drawn from two general population groupings. The first group was composed of Iowa citizens whose names were randomly selected from white page telephone directories all over Iowa and supplemented with auto registration information from counties that release these data. A total of 1,000 names from this group were chosen to receive the survey questionnaire.

To maintain the representativeness of the sample, probability methods were also applied to the selection of respondents within a given household. The addressees were specifically given instructions as to the other likely person to answer the questionnaire should he or she find himself or herself in a difficult position to complete the survey. The population under study included all adults 18 years of age and over. If there were several eligible household members, the addressee was asked to select the adult whose birthday comes closest to August 15.

A second group of respondents is composed of 150 Iowa state legislators from the state's 99 counties. Here, a modified random sampling technique was applied to choose at least one name from

a specified county cluster. Then, additional legislator names were added proportional to the county's population size.

The total number of questionnaires sent out to both groups, therefore, came to 1,150. Two weeks after the first wave, a postcard was sent out to those who had not yet returned their questionnaires, persuading them to devote 15 minutes of their time to respond to the survey. In three weeks, 213 questionnaires were returned. The second-wave mailing began after the fourth week. After second-wave mailing, 483 questionnaires were returned, giving a response rate of 42%.

Outside of the commonly observed inability of mailed surveys to elicit responses, this low response rate may have been due additionally to two factors. First, anywhere from 12% to 15% of the names included in the mail sample may have changed due to normal population mobility. And second, 10% to 20% of records statewide are rural—with addresses consisting of two lines only and are sometimes considered to be undeliverable by local post offices. Although taken from identified geographic areas, the respondents' standard demographic characteristics matched those of the 1996 state census tract data (Iowa State University Census Services, 1996).

This initial survey served as the project's pre-test measure. A post-test survey using a panel design will be conducted in early 1999, a year and a half after campaign implementation, to test impact.

## Definition and Measurement of Variables

*The independent variables.* Following the theoretical framework, the analysis included three variables that represented the **self-interest**, **sociotropic**, and **symbolic politics** dimensions. The major political "symbol" included is Inglehart's model of post-materialism.

Moreover, the research question demanded a measure of citizens' **ideology** because it is one of the traditional predispositions people employ to evaluate present-day issues. This dimension, acquired largely during formative socialization years, allows people to reduce complex political issues to manageable proportions later in life. Generally, however, ideology is not expected to significantly affect the opinion-formation process on ecological problems, because previous research has shown that this variable is at best weakly related to environmental attitudes (i.e., Van Liere & Dunlop, 1980). Nevertheless, this variable was included to demonstrate its effect on the absolute and relative strength of the three main variables of interest.

Another related variable, **political involvement**, was also considered as other researchers (i.e., Dalton, 1984) have indicated that those who are intellectually mobilized tend to be better informed about the burning issues of the day.

Among the standard demographic variables, **education** and **age** were included in the analysis because it has been argued that these may be linked to the value change dimension (Inglehart, 1977).

*The measurement of independent variables.* The **self-interest** dimension was measured by a series of items that tap the condition of the local environment. The underlying notion here is that respondents whose local environment is polluted have a self-interest motive for favoring strict environmental standards. The question reads:

In your community, how worried or concerned are you about the following: soil erosion and sedimentation, noise pollution, livestock waste, waste management, water quality, purity of drinking water, agricultural chemicals, loss of wildlife habitat and natural areas, inadequate park and recreational facilities, industrial pollution?

The response categories ranged from a great deal, a fair amount, not very much, to not at all.

The variety of environmental problems included cover a fairly broad range of present-day ecological issues in Iowa (IDNR, 1995).

The **sociotropic** dimension was measured by asking the following question:

Now about Iowa as a whole, I would like to find out how worried or concerned you are about a number of problems I am going to mention. The response categories are: a great deal, a fair amount, not very much, and not at all.

Again, respondents were asked this question about a variety of environmental problems that differed slightly from the items in the self-interest measure. This question also employed the most pressing ecological issues being discussed in Iowa's media: contamination of bodies of water, air pollution, chemical and industrial waste, and ground-water contamination from pesticides and herbicides.

The **symbolic politics** dimension was a reconceptualization of Inglehart's four-item index which grouped respondents into "materialists," those with "mixed values," and "post-materialists." Materialists selected the two items dealing with inflation and domestic order; post-materialists chose the items dealing with citizen participation

and free speech. Respondents who selected a materialist and post-materialist item were classified as mixed. Instead of asking respondents to select which items they consider most important, researchers asked respondents, in an open-ended question, the most urgent problems confronting the nation today. Then respondents were asked to rank-order these volunteered responses in terms of how important they perceive these problems to be. Using these uncued responses, we thought, was a more pragmatic way of measuring symbolic politics. Problems ranked first were analyzed and categorized accordingly.

**Ideology** was measured by respondents' self-assigned position in a 10-point scale in which 1 means "left" and 10 means "right."

**Political involvement** was measured by a four-point index based on questions that asked about (a) the extent with which respondents discussed politics with friends and acquaintances and (b) general interest in politics. The scale here ranged from 1, indicating low interest and involvement, to 4, indicating high interest and involvement.

*The dependent variable and its measurement.* The dependent variable, **attitude toward resource enhancement and protection**, was measured by forcing respondents to make a choice between protecting the environment and some conflicting goal. The two questions used here have a built-in threshold which taps the seriousness and depth of attitudes toward resource protection and requires respondents to make a trade-off between environmental protection and economic goals. The first question asks:

Sometimes, measures that are designed to protect the environment cause industries to spend more money and therefore raise their prices. Which do you think is more important: protecting the environment, or keeping prices down?

Respondents either chose one of the two statements or volunteered "not sure." The next question was worded as follows:

Here are two statements that people sometimes make when discussing the environment and economic progress.

**Statement A:** Protection of the environment should be given priority, even at the risk of holding back economic growth.

**Statement B:** Growth should be given priority, even if the environment suffers to some extent.

Which of these statements comes closest to your own point of view?

Again, respondents could choose between the two statements or were coded as "other." An index based on these two questions was created. Those who preferred the environment in both questions were coded as having favorable attitudes toward resource protection. Those who selected both economic goals were coded as having unfavorable attitudes toward it. Respondents who were not sure fell into the "other" category and were coded as mixed.<sup>1</sup>

## Results and Discussion

*Self-interest.* Iowans expressed a fair amount to a great deal of concern about the following problems or conservation needs in their communities. These problems, they argue, require the federal, state, and local governments' most urgent attention:

- water quality and the purity of drinking water (86%)
- waste management (landfills, recycling, hazardous wastes) (83%)
- agricultural chemicals (81%)
- loss of wildlife habitat and natural areas (75%)
- industrial pollution (68%)
- livestock waste (63%)
- inadequate parks and recreational facilities (55%)

*Sociotropic.* On the state level, on the other hand, respondents indicated a fair amount to a great deal of concern about the following:

- water quality (89%)
- agricultural chemicals (86%)
- waste management (landfills, recycling, hazardous wastes) (83%)

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<sup>1</sup> The category, "other" here is not really equivalent to the "not sure" category of the first question, which can be interpreted as being between favorable and unfavorable. The entire analysis was therefore run with or without the "other" category included in the index.

- loss of wildlife habitat and natural areas (70%)
- industrial pollution (65%)
- livestock waste (74%)
- inadequate parks and recreational facilities (65%)

*Symbolic politics.* A content analysis of the qualitative responses to the question that solicits the top problems confronting the nation produced categories that corresponded with Inglehart's (1981) definition of materialist vs. post-materialist values. Based upon voluntary, uncued responses, this method of measuring symbolic politics held greater internal validity. Problems ranked first were analyzed and categorized accordingly. The results indicated an even split between Inglehart's definition of materialist versus post-materialist values (Table 1).

A factor analysis was performed with all items that supposedly tapped the self-interest, the sociotropic, and the symbolic politics dimensions. The idea is that if these were distinct opinion dimensions, then the items measuring each dimension should form distinct clusters.

Table 2 shows the three factors which emerged from the SPSS/PC+ V4.0 factor analysis. All items behaved as expected. Items that tapped the self-interest dimension loaded very high on the first (sociotropic) factor but very low on the other two factors. Conversely, items measuring the self-interest dimension loaded very high on the second (self-interest) factor but loaded rather low on the other two factors. The materialist-post-materialist index loaded very low on the first two factors but very high on the third (post-materialism) factor. The results confirmed the hypothesis that the items used to tap the three independent variables were three separate dimensions.

*Ideology.* When asked to self-select a position in a 10-point political orientation scale, in which 1 means "left-leaning" and 10 means "right-leaning," respondents' answers indicated a mean of 5.78 (standard deviation: 2.765). This suggests a slightly right-of-center political inclination.

*Political involvement.* The majority of the respondents (53%) say they are "interested" to "very interested" in politics ( $X = 2.34$ , standard deviation = 1.02). Most of them (49%) also report that they talk to friends and acquaintances about politics "sometimes" ( $X = 2.52$ , standard deviation = 0.84).

Table 1. *Categories of most important problems confronting the nation*

<b>Materialist (n=234; 56.4%)</b>	<b>Post-materialist (n=145; 34.9%)</b>
National deficit	Environmental protection
Crime and violence	International relationships
Taxes	Education
Health	Family and moral values
Jobs	Reproductive rights
Media content	Inequality
Welfare reform	Drugs and teens

Table 2. *Factor analysis of items measuring sociotropic, self-interest, and symbolic politics dimensions*

<b>Dimensions</b>	<b>Factor I Socio- tropic</b>	<b>Factor II Self- interest</b>	<b>Factor III Post- materialism</b>
<b>Sociotropic</b>			
Water quality	.75872	-.04314	-.09615
Industrial pollution	.70915	.19607	.12308
Agricultural chemicals	.71990	.22889	-.01092
Waste management	.74317	.21023	.12452
<b>Self-interest</b>			
Drinking water	.41327	.74835	.24159
Noise pollution	.44628	.63315	.00907
Livestock waste	-.31592	.64838	-.15381
Lack of parks	.31528	.78275	.09027
<b>Symbolic politics (post-materialism)</b>			
	.42293	.19666	.67316

Factor analysis is a principal components solution with varimax rotation. N=634, allowing for multiple responses.

*Demographic variables.* The sampling method produced a mature respondent group with an average age of 50 years. It is therefore not surprising to find 17% with post-graduate education. The average respondent, however, is a high school graduate who has had some college education.

*The dependent variable.* Table 3 presents the marginals of the dependent variable, showing that a majority supports the protection of the environment. The degree of lowans' concern for the environment becomes especially evident if we recall that the measures on which the dependent variable is based required citizens to select between economic goals and environmental protection. The question explicitly referred to the potential economic costs that may be incurred by actions to protect the environment. Still, a majority is evidently ready to bear the economic costs.

Why does such a large percentage of the respondents hold favorable attitudes toward environmental enhancement and protection? Three models were presented to approach the question.

Table 4 presents the bivariate relationships (Pearson's r) between the three main independent variables and attitudes toward the environment. The sociotropic and self-interest dimensions turned out to be the strongest predictors of environmental attitudes. This indicates that people who favor environmental protection do so partly because they are concerned with the impact of wasteful resource use on their immediate communities or vicinity and that they are concerned

Table 3. *Attitudes toward environmental protection*

Value Label	Value	Frequency	Valid Percent	Cum Percent	Percent
Favorable	1	212	51.1	56.5	56.5
Unfavorable	2	61	14.7	16.3	72.8
Mixed	3	102	24.6	27.2	100.0
	9	<u>40</u>	<u>9.6</u>	<u>Missing</u>	
Total		415	100.0	100.0	
Mean	1.707		Std dev	.868	
Valid cases	375		Missing cases	40	

about the destruction of nature as a state issue. The strong association between self-interest and the dependent variable indicates that experience with ecological problems in one’s immediate environment generally does have a large influence on attitudes toward environmental protection. The symbolic politics (post-materialism) dimension is also rather strongly related with people’s attitudes toward environmental protection although the strength of this correlation is not as strong as with the two other models.

Do these results withstand a more powerful multivariate test? The multiple regression analysis reported in Table 5 bear on this general research question which seeks to determine the amount of favorable attitude variance accounted for by the three main variables considering a host of other possible antecedents. Seven predictor variables were regressed on attitude towards the environment using the forced entry method. Table 5 reports the increment to explained variance ( $R^2$  change) for each variable, and the significance of that increment.

Results of this analysis confirm earlier results: the self-interest dimension exercised the most significant effect on respondents’ attitudes on environmental issues. Whether the neighborhood is polluted or not directly influenced attitudes on the trade-off between environmental protection and economic goals. Thus, self-interest concerns were the strongest stimuli to induce positive attitudes on environmental protection issues.

The second observation is that the sociotropic dimension still exercises a strong influence. If people are worried about environmental problems affecting the nation as a whole, then they are much more likely to favor measures to protect nature, even if these measures have negative repercussions on the economy.

The strong influence of the symbolic politics dimension also stood up to this multivariate test. Although this was expected given the bivariate relationships, perhaps more interesting is that it

<i>Table 4. Bivariate correlations (Pearson’s r) of dimensions with attitudes toward environmental protection</i>	
Self-interest	.2754***
Sociotropic	.3358***
Symbolic politics (post-materialism)	.1232*
***p <.001 *p<.05	

Table 5. *Multiple regression coefficients predicting influence on attitudes toward environmental protection*

	Beta	Cumulative R	R <sup>2</sup>	F change (R <sup>2</sup> change)
Self-interest	.31	.34	.11544	7.20***
Sociotropic values	.24	.36	.12829	6.74***
Symbolic politics	.09	.37	.13591	6.16***
Ideology	.14	.15	.02372	1.68
Political involvement	.01	.06	.00448	.41
Education	.01	.06	.00437	.61
Age	.06	.06	.00425	1.19

\*p<.05    \*\*p<.01    \*\*\*p<.001

was consistently weaker than both self-interest and the sociotropic dimension in both tests.

The control variables—ideology, political involvement, education and age—did not affect attitudes toward environmental protection. The nonfinding for ideology supports the notion that increasing environmental concern is a phenomenon that cuts across ideological leanings. This may be so partly because people have changed value priorities and partly because they perceived ecological problems as threatening. Of the two demographic antecedents, the level of cognitive skills that supposedly goes with higher educational status did not perform well as a predictor of attitudes about the environment.

The self-interest and sociotropic dimensions, and to a lesser extent, symbolic politics or post-materialism, were significantly related to attitudes toward the environment, even when controlling for other additional variables. The self-interest dimension, however, added most to the explanatory value of the equation, followed by sociotropic concerns and symbolic politics or post-materialist values.

## Conclusion

The findings suggest that Iowans still favor environmental protection even if substantial economic costs are involved. Each of the three models contributed directly to the opinion formation process, although the self-interest and sociotropic dimensions displayed the strongest direct effect. This suggests that people indeed evaluate ecological problems as national issues and that experiences with

ecological problems in one's immediate environment lead directly to favoring resource use regulations. This may result in increased concern with the state environment.

For the campaigner, these results imply that campaign messages must be framed in a way that stresses the benefits of environmental protection on the individual. Following survey results, print and broadcast messages need to be designed to answer the oft-repeated question: "What's in it for me?" The self-interest model suggests that people use information they obtain from their immediate experiences. This means that messages should remain "location-specific" to be relevant to individual interests. It also suggests that people may respond more to information from sources who tackle their immediate issues. The condition of their local neighborhood or backyards—as opposed to the condition of the nation—is likely to have more impact on their concern towards the environment.

Post-material values are a different source of concerns for environmental issues. In this model, younger and better educated citizens develop a concern for the ecology because they experience economic affluence and physical security during their socialization years. The findings lend support to the contention that people hold favorable attitudes toward the environment because their value priorities have changed and because they are worried about the true state of ecological affairs.

The implications for a full blown information campaign as well as other government actions are substantial. First, any communication campaign and government action must tackle environmental problems seriously because incremental and symbolic policy action are unlikely to meet the policy expectations of citizens. Public beliefs on ecological issues are rooted in a general concern about the self, the environment or in post-material value priorities. A communication campaign must therefore strengthen this belief by providing practical measures that individuals can implement using his or her own available means to protect the environment. Campaign goals must therefore reward the individual with a sense of personal efficacy.

The increased environmental sophistication of Iowans is indicated by the strong showing of sociotropic dimensions. In Iowa, the scope of citizens' viewpoints now reaches beyond their personal contexts, enabling them to evaluate ecological problems as a state, and not just a backyard issue. Communication appeals, therefore, should focus on the beneficial effects of judicious resource use not just on the immediate community, but on state life as well.

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