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ABSTRACT

Data, secured by questionnaire from single household dwelling units in Warwick, Rhode Island, were used to ascertain differences among social status groups with respect to attitudes and conceptualization pertaining to water pollution and water supply. A social status index was used to delineate three status groups having high, middle, and low rank (designated as groups I, II, and III, respectively). Tension related to water pollution was experienced in each status group; however, it was greater for groups of high and middle status than for the low status group and differed significantly only between groups I and III. An information index was used to measure the general level of knowledge about pollution and supply of ground water and surface water. No significant differences were found among status groups. The affirmation of belief in man's control of water pollution and supply was greater in the higher status groups than in the lower ones. A preponderance of respondents agreed that control of situations and responsibility for them are associated. Beliefs under conditions of no conflict and conditions of conflict differed significantly. (Author/CP)

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Social Status Variations in Attitudes and Conceptualization Pertaining to Water Pollution and Supply

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TABLE OF CONTENTS

Summary

Data were secured by questionnaire from single household dwelling units in Warwick, Rhode Island, to ascertain differences among social status groups with respect to attitudes and conceptualization pertaining to water pollution and water supply. A social status index was used to delineate three status groups having high, middle, and low rank, and designated as groups I, II, and III, respectively.

Tension related to water pollution was experienced in each status group; however, it was greater for groups of high and middle status than for the low status group and differed significantly only between groups I and III.

An information index was used to measure the general level of knowledge about pollution and supply of ground water and surface water. Respondents were shown to be more uninformed than informed about the items used in constructing the index. With respect to distributions of information indices, no significant differences were found among status groups; although differences between groups I and III, for distributions of ground water information indices, approached significance.

Belief in man's control of water pollution and supply was affirmed by a majority of respondents. The affirmation was greater in the higher status groups than in the lower ones. Significant differences were found to exist, or to be approached, between group III and groups I and II.

A preponderance of respondents agreed with the idea that control of situations and responsibility for them are associated. Under conditions of no psychological conflict, status groups were not significantly different. Under conditions of conflict, differences between groups I and III approached significance. The introduction of conflict gave rise to an increase in agreement with, uncertainty about, and disagreement with the idea. Changes did not vary systematically with status group rank. Yet, belief under conditions of no conflict and conditions of conflict differed significantly.

SOCIAL STATUS VARIATIONS IN ATTITUDES AND CONCEPTUALIZATION PERTAINING TO WATER POLLUTION AND SUPPLY*

*Irving A. Spaulding***

PURPOSE OF THIS RESEARCH

This study is an examination of variations among social status groups with respect to attitudes and conceptualization pertaining to water pollution and water supply.

JUSTIFICATION

We know that men are best able to solve problems when they have adequately strong motivation and accurate conceptualization of the situation with which they are concerned to analyze the problem correctly and to formulate alternative solutions to it. In contemporary United States, there seems little doubt about man's motivation to solve water pollution and supply problems. We have little information, though, to indicate how well informed people are about them. We need to be concerned about the comprehension of them throughout the population of the country, for in the last analysis, these problems will be solved by the action of both our wide-ranging industrial, commercial, and governmental bureaucracies and our people in local communities.

**This research was funded by a grant from the Rhode Island Water Resources Center, pursuant to P.L. 88-379.*

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PERTINENT LITERATURE

This study is in the same area of interest as Ibsen and Ballweg's *Public Perception of Water Resource Problems.* They indicate that water pollution and water shortage are the two water resource problems most commonly mentioned by respondents. They also found that relatively young respondents who had a short duration of current residence, relatively high levels of education and income, and professional and managerial occupations reported perception of water resource problems more often than other respondents. While 75% of the respondents had heard or read a discussion of water resource problems, only 34% regarded water resources as problematic and only 3% regarded them as a major problem in the world. On the other hand, only 3% felt water resource problems could not be solved. When given the opportunity to suggest solutions to these problems, 41% did not. More effective legislation than that existing was felt to be needed by the majority of respondents offering solutions. Consistently, private citizens and federal agencies were looked upon as responsible for initiating solutions. A greater proportion of males than of females reported awareness of water resource problems, and television was reported as the major source of information on water resource problems.[1]

HYPOTHESIS

The hypothesis examined here is that significant variations exist among social status groups with respect to attitudes and conceptualization pertaining to water pollution and water supply.

DATA COLLECTION

Questionnaires were sent in July, 1969, to household heads in a sample of single household dwelling units served by one water system and having an exclusive water meter in the city of Warwick, Rhode Island.[2] The sample was 3,460 dwelling units.[3] A return of 11.07% was secured; hence, 383 questionnaires were returned and analyzed. The questionnaire is reproduced in Appendix A.

ANALYSIS OF DATA

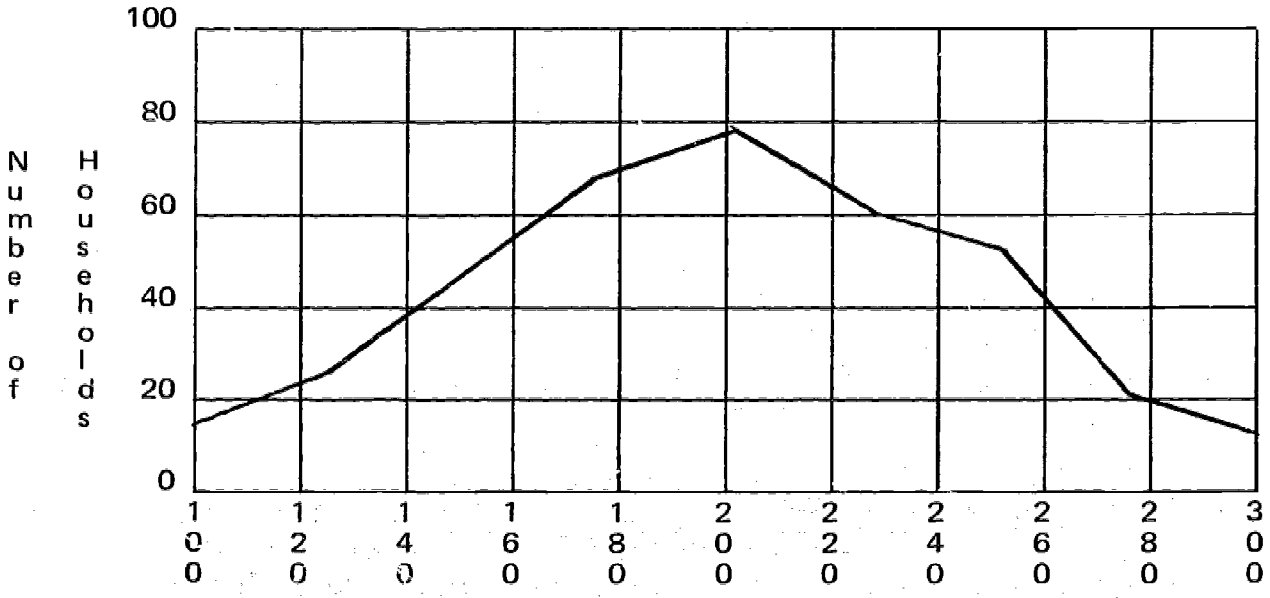
DISTRIBUTION OF HOUSEHOLDS BY STATUS INDEX

Figure 1 shows the distribution of these 383 household heads by social status index. The distribution, in the context of an index range from 100 to 300, is fairly symmetrical. The 200-point range is divided into three equal intervals which, along with the number of household heads in each, are as follows:

Group I: 300-234 interval, 87 household heads
Group II: 233-167 interval, 206 household heads
Group III: 166-100 interval, 90 household heads

These are the high, middle, and low status groups used in the analysis of data; in descending status sequence, they comprise 22.72% (group I), 53.79% (group II), and 23.49% (group III) of the 383 households. Construction of the status index is described in Appendix B.

Figure I. Distribution of Household Heads by Status Index; Selected Census Tracts, Warwick, Rhode Island, 1969



383 Households: 100.00%

Group III (low) 23.49%		Group II (middle) 53.79%		Group I (high) 22.72%	
Index	Households	Index	Households	Index	Households
100	15	175	68	250	53
125	26	200	77	275	21
150	49	225	61	300	13
	90		206		87

EUPHORIA-TENSION LEVELS RELATED TO WATER POLLUTION

Status groups were compared on the basis of euphoria-tension levels related to water pollution. Distributions of euphoria-tension indices for these groups are shown in Table 1; mean euphoria-tension indices are shown in Table 2. Construction of the euphoria-tension level index is described in Appendix C. Briefly, the euphoria-tension index reflects the extent to which either euphoria or tension is dominant in a person's feelings during a specified interval. Within the range of possible indices, a state of equilibrium constitutes a mid-point on one side of which is a dominance of euphoria while on the other side is a dominance of tension. Contributing to a dominance of euphoria are feelings of relaxation, monotony, and boredom; each has its distinctive index range; a dominance of them would be reflected by an index on the euphoria side of equilibrium. Contributing to a dominance of tension are feelings of tension, resentment, and anger; each of these, also, has a distinctive index range; a dominance of these would be reflected by an index on the tension side of equilibrium.

Over all, the data indicate that tension is felt in each status group with respect to water pollution. The percentage of respondents on the tension side of equilibrium for groups I, II, and III is 82.8%, 86.8%, and 80.0%, respectively. In each group, about one-half of these respondents are in the

Table 1. Distributions of Euphoria-tension Levels Related to Water Pollution; X^2; Household Heads Classified by Status Group; Selected Census Tracts, Warwick, Rhode Island, 1969

	Status Groups							
Euphoria-tension	I		II		III		Total	
Index ranges	No	%	No	%	No	%	No	%
45.0-59.9 (Boredom)	0	0.0	0	0.0	0	0.0	0	0.0
35.0-44.9 (Monotony)	3	3.4	7	3.4	3	3.3	13	3.4
30.1-34.9 (Relaxation)	10	11.5	10	4.9	7	7.8	27	7.1
30.0 (Equilibrium)	2	2.3	10	4.9	8	8.9	20	5.2
25.0-29.9 (Tension)	8	9.2	34	16.5	23	25.6	65	16.9
15.0-24.9 (Resentment)	38	43.7	83	40.2	36	40.0	157	41.0
0.0-14.9 (Anger)	26	29.9	62	30.1	13	14.4	101	26.4
Total	87	100.0	206	100.0	90	100.0	383	100.0

Groups	X^2	df	P	
I,II,III	21.28	12	<0.05	
I,II	7.38	6	>0.05	
II,III	11.33	6	>0.05	(= 0.0821)
I,III	15.71	6	<0.02	

index range of feelings of resentment. When resentment and anger are taken in combination, however, tension can be seen as more prevalent in group I, with high status, than in the other two groups. For group I the percentage of these respondents is 73.6%, while for group II it is 70.3% and for group III, 54.4%. The proportion of respondents with indices in the tension range (25.0-29.9) and at equilibrium increases as status decreases; the proportion in the range of relaxation increases as status increases. The proportions for monotony and boredom do not change from status group to status group. The highest status group, group I, has the largest combined proportion of respondents showing resentment and anger and the largest proportion for relaxation. The low status group, group III, shows the largest proportion of respondents in the tension range.

On the basis of variations among them, the distributions for groups I and III are significantly different, those for II and III approach being significantly different, and those for I and II are not significantly different (Table 1).

Mean euphoria-tension indices show similar relationships. For groups I, II, and III, the mean indices are 18.85, 19.67, and 23.11. All are in the resentment range and reflect less tension in the lower status groups than in the higher ones. Only the means for groups I and III are significantly different (Table 2).

Tension with respect to water pollution, then, is discernible and extensive in all status groups. Tension is greater and more extensive in the high and middle status groups than in the low one; the high group and the low one are significantly different; the middle status group is significantly different from neither of the others, but approaches significant difference from the low status group in some respects.

Table 2. Significance of Differences between Mean Euphoria-tension Indices: Differences, x/σ, and P for Status Groups; Household Heads Classified by Status Groups; Selected Census Tracts, Warwick, Rhode Island, 1969

Status Groups	Differences Between Means	x/σ	P
I and II	0.82	0.6958	0.4902
II and III	3.44	1.2045	0.2302
I and III	4.26	1.8651	0.0614*

Mean euphoria-tension indices for status groups:

I: 18.85; II: 19.67; III: 23.11. All households: 20.29.

*This approaches significance at the 0.05 level and is regarded as significant in context.

KNOWLEDGE ABOUT WATER POLLUTION AND WATER SUPPLY

Status groups were compared in terms of respondents' knowledge about pollution and supply of ground water and of surface water. Construction of the information indices which were used is described in Appendix D. The procedure is essentially that of taking a "true-false" inventory with eight statements for ground water and eight for surface water. On the basis of the number of statements correctly evaluated and the number incorrectly evaluated, information indices ranging from 0.0 to 20.0 were computed; these represent the extremes of "all incorrect" or of "all correct". An index of 10.0 indicates an equal number of statements correctly and incorrectly evaluated. An index of 5.0 indicates one-fourth of the statements correctly evaluated, and an index of 15.0 indicates three-fourths of the statements correctly evaluated.

GROUND WATER (water from a saturated zone in the earth)

With respect to knowledge about pollution and supply of ground water, there is a

predominance of respondents who evaluated less than one-half of the statements correctly. For all respondents, the percentage is 62.7%. With respect to status groups I, II, and III, the percentages are 70.1%, 63.1% and 54.5%.

The distribution of indices indicates that the percentage of respondents evaluating more statements correctly than incorrectly was greater for the low status group than for either the middle or the high status group. For status groups I, II, and III, the percentages are 29.9%, 36.9%, and 45.5%.

Table 3.

Distributions of Ground Water Information Indices; Household Heads Classified by Status Groups; X^2; Selected Census Tracts, Warwick, Rhode Island, 1969

Range of Information Indices	Status Groups I No	I %	II No	II %	III No	III %	Total No	Total %
15.0-20.0	4	4.6	13	6.3	10	11.1	27	7.0
10.0-14.9	22	25.3	63	30.6	31	34.4	116	30.3
5.0- 9.9	59	67.8	127	61.7	45	50.0	231	60.3
0.0- 4.9	2	2.3	3	1.4	4	4.5	9	2.4
Total	87	100.0	206	100.0	90	100.0	383	100.0

Groups	X^2	df	P	
I,II,III	9.09	6	> 0.05	
I,II	1.54	3	> 0.05	
II,III	5.97	3	> 0.05	
I,III	6.62	3	> 0.05	(= 0.0882)

In each status group, most respondents evaluated only between one-fourth and one-half of the statements correctly, and the proportion increases with increase in status. For groups I, II, and III the percentages are 67.8%, 61.7%, and 50.0%. Between one-half and three-fourths of the statements were evaluated correctly by 25.3% of high status respondents, 30.6% of the middle status respondents, and 34.4% of the low status respondents.

Despite this variation, none of the distributions for the status groups are significantly different at the 0.05 level; however, those for groups I and III approach being significantly different (Table 3).

The mean information indices for the status groups are, from groups I to III, 10.00, 9.49, and 9.06. They cluster at and near the half-correct/half-incorrect relationship and show a tendency for the high status group to be more extensively correct than the middle and low status groups. Although none of the differences between these means are significant, the difference for the means of groups I and III approaches significance (Table 4).

SURFACE WATER (exposed bodies of fresh water)

With respect to surface water, a predominance of respondents (58.2%) evaluated less than one-half of the statements about pollution and supply of surface water correctly. For status groups I, II, and III, the percentages are 55.2%, 59.2%, and 58.9%.

However, the percentage of respondents evaluating more statements correctly than incorrectly was greater for the high status group than for the middle and low status groups. For groups I, II, and III the percentages are 44.8%, 40.8% and 41.1%.

Table 4. Significance of Differences Between Mean Ground Water Information Indices for Status Groups: Differences, x/σ, and P for status Groups; Household Heads Classified by Status Groups; Selected Census Tracts, Warwick, Rhode Island, 1969

Status Groups	Differences Between Means	x/σ	P
I and II	0.51	1.1116	0.2670
II and III	0.43	0.9018	0.3682
I and III	0.94	1.6480	0.0990*

Mean ground water information indices for status groups:
I: 10.00; II: 9.49; III: 9.06. All households: 9.50.
*This approaches significance at the 0.05 level.

In each status group, most respondents evaluated only between one-fourth and one-half of the statements correctly, with the largest percentage being for respondents with middle status. The percentages are 55.2%, 59.2%, and 56.7% for groups I, II, and III respectively. Between one-half and three-fourths of the statements were evaluated correctly by 42.5% of the high status respondents, 39.8% of the middle status respondents, and 38.9% of low status respondents. For the combinations of distributions, no differences were significant at the 0.05 level (Table 5).

Table 5. Distributions of Surface Water Information Indices; Household Heads Classified by Status Groups; X^2; Selected Census Tracts, Warwick, Rhode Island, 1969

Range of Information Indices	Status Groups I No	I %	II No	II %	III No	III %	Total No	Total %
15.0-20.0	2	2.3	2	1.0	2	2.2	6	1.6
10.0-14.9	37	42.5	82	39.8	35	38.9	154	40.2
5.0- 9.9	48	55.2	122	59.2	51	56.7	221	57.7
0.0- 4.9	0	0.0	0	0.0	2	2.2	2	0.5
Total	87	100.0	206	100.0	90	100.0	383	100.0

Groups	X^2	df	P
I,II,III	7.90	6	> 0.05
I,II	1.07	3	> 0.05
II,III	5.39	3	> 0.05
I,III	2.09	3	> 0.05

The mean information indices are 9.31, 9.28, and 9.19 for status groups I to III, in that sequence. They are near the half-correct/half-incorrect relationship and show a slight increase in information index associated with increase in status. The means are not significantly different at the 0.05 level (Table 6).

Table 6. Significance of Differences Between Mean Surface Water Information Indices for Status Groups: Differences, x/σ, and P for Status Groups; Household Heads Classified by Status Groups; Selected Census tracts, Warwick, Rhode Island, 1969

Status Groups	Differences Between Means	x/σ	P
I and II	0.03	0.1056	0.9124
II and III	0.09	0.2962	0.7718
I and III	0.12	0.2936	0.7718

Mean surface water information indices for status groups:
I: 9.31; II: 9.28; III: 9.19. All households: 9.27.

COMMENT

For both ground water and surface water, more than one-half of the statements used and pertaining to pollution and supply of ground water and of surface water were evaluated incorrectly by more than one-half of the respondents; for ground water, this percentage was 60.3% and for surface water it was 57.7%. Even though the percentage of respondents in each status group who evaluated more statements incorrectly than correctly was between 50.0% and 70.0%, the percentages were consistently lower for surface water than for ground water. These relationships indicate a general lack of information on the population, but they suggest that the respondents are more knowledgeable about surface water than about ground water.

This interpretation is supported by the consistency with which the percentages of respondents evaluating more statements correctly than incorrectly are larger for surface water than for ground water, even though all are less than 50.0%. This relationship pertains to each status group.

Contradicting this interpretation, however, are the mean information indices of 10.00, 9.49, and 9.06 for ground water and of 9.31, 9.28 and 9.19 for surface water in status groups I, II and III. These indices suggest correspondence between status and information index which is not systematically supported by the percentages for correct and incorrect answers pertaining to ground water and to surface water.

The major indications of the data are that consistently more than one-half of the respondents evaluated more than one-half of the statements incorrectly and that the status groups are not, with respect to knowledge shown by the information indices, significantly different.

CONTROL OF WATER POLLUTION AND OF WATER SUPPLY

Indices were constructed to compare orientations with respect to man's ability, obligation, and accomplishment in control of water pollution and of water supply. Construction of the ability-norm-action (ANA) indices is described in Appendix E. Within a range from 1.0 to 5.0, an index of 2.4 or less indicated agreement with the idea that man is capable of controlling water purity and availability, should do so, and does do so, in order to prevent pollution or to ensure supply. An index of 2.5 to 3.4 indicates uncertainty in this respect. An index of 3.5 or more indicates disagreement with this composite idea.

Table 7. Distributions of Ability-Norm-Action Indices Relative to Control of Water Pollution; x^2; Household Heads Classified by Status Groups; Selected Census Tracts, Warwick, Rhode Island, 1969

Ranges of A-N-A Indices	Status Groups I No	I %	II No	II %	III No	III %	Total No	Total %
Strongly Agree (1.0-1.4)	14	16.1	22	10.7	9	10.0	45	11.8
Agree (1.5-2.4)	62	71.3	150	72.8	55	61.1	267	69.7
Uncertain (2.5-3.4)	11	12.6	32	15.5	23	25.6	66	17.2
Disagree (3.5-4.4)	0	0.0	2	1.0	1	1.1	3	0.8
Strongly Disagree (4.5-5.0)	0	0.0	0	0.0	2	2.2	2	0.5
Total	87	100.0	206	100.0	90	100.0	383	100.0

Groups	X^2	df	P
I,II,III	15.52	8	> 0.05
I,II	2.66	4	> 0.05
II,III	9.25	4	> 0.05
I,III	8.69	4	> 0.05

WATER POLLUTION

Belief in man's control of water pollution, as described above, was prevalent in all status groups. The percentage of respondents with an ANAp (ability-norm-action: pollution) index of 2.4 or less was 87.4% in group I, 83.5% in group II, and 71.1% in group III.

This reduction in the percentages is accompanied by an increase in the percentage of respondents showing uncertainty with respect to man's control of water pollution; for groups I, II, and III, the percentages showing uncertainty are 12.6%, 15.5%, and 25.6%. In addition, none of the respondents for group I showed disbelief in man's control of pollution, but disbelief was shown by 1.0% of group II respondents and by 3.3% of those in group III.

Despite these variations, none of the distributions are significantly different at the 0.05 level (Table 7).

The mean ANAp indices for the three status groups are 2.0451 for group I, 2.1400 for group II, and 2.3031 for group III. All are in the range of agreement with belief in man's ability to control water pollution, but they show greater disbelief among respondents of lower status than among those of higher status. The differences among status groups in this respect are adequately great so the mean index for group III is significantly different from the means for groups II and I (Table 8).

WATER SUPPLY

Belief in man's control of water supply was also prevalent in all status groups. In group I, 82.7% of the respondents had an ANAws (ability-norm-action: water supply) index of 2.4 or less; for group II, the percentage was 80.1%; for group III, it was 65.5%.

Table 8. Significance of Differences Between Mean Ability-Norm-Action Indices Relative to Control of Water Pollution: Differences, x/σ, and P for Status Groups; Household Heads Classified by Status Groups; Selected Census Tracts, Warwick, Rhode Island, 1969

Status Groups	Differences Between Mean	x/σ	P
I and II	0.0950	1.4844	0.1388
II and III	0.1631	2.2843	0.0226
I and III	0.2580	2.9054	0.0036*

Mean ability-norm-action indices for status groups:
I: 2.0451; II: 2.1400; III: 2.3031. All households: 2.1567.
*This is significant at the 0.05 level.

While the above percentages decreased as status lowered, the percentage of respondents showing uncertainty with respect to man's control of water supply increased. For the groups in sequence of decreasing status, the percentages are 16.1%, 18.4%, and 27.8%. Disbelief also was more prevalent in the lower status groups than in those of higher status. The percentages of respondents showing disbelief in control of water supply were 1.2%, 1.5%, and 6.7% for status groups I, II, and III, respectively.

Differences among the distributions for the status groups are of significance for groups II and III (P = 0.0280); the difference between groups I and III approaches significance at the 0.05 level. That between groups I and II is not significant (Table 9).

The mean ANAws indices are 2.0491 for group I; 2.1212 for group II; and 2.3111 for group III. They show somehwat greater disbelief among the lower status respondents than among the higher ones with respect to man's ability to control water supply, but all are in the range of agreement with belief in man's ability to do so. And the differences among the status groups are great enough so the mean index for group III is significantly different from the means for groups II and I (Table 10).

COMMENT

Ability-norm-action indices show relationships among status groups to be similar but varying in degree with respect to beliefs about control of water pollution and water supply. Indices showed a prevalence of respondents who agreed with belief in man's control of water pollution and water supply. This agreement was more prevalent in the higher status groups than in the lower status groups. The lower status groups consistently showed more uncertainty than the higher status groups. The lower status groups also were consistent in showing more prevalent disbelief in man's control of water pollution and supply. Differences between status groups were adequately great to be significant at the 0.05 level, or to approach significance, with more consistency in the area of water supply than in the area of water pollution. The prevalent tendency is for group III to be significantly different with respect to groups II and I, which are not significantly different.

CONTROL AND RESPONSIBILITY ORIENTATION

Feelings of responsibility for circumstances influenced and controlled under conditions of no psychological conflict and under conditions of conflict were examined. Effective control of water pollution and supply entails acceptance of responsibility; responsibility is not always assumed, and problems are not always solved, under psychologically consistent conditions. The ANA (ability-norm-action) indices examined above show belief in man's ability, obligation, and accomplishment with respect to control of water; the data considered here reflect belief relative to association between control and responsibility.

The construction of responsibility indices is described in Appendix F. Briefly, for each

Table 9. Distributions of Ability-Norm-Action Indices Relative to Control of Water Supply; X^2; Household Heads Classified by Status Groups; Selected Census Tracts, Warwick, Rhode Island, 1969

Ranges of A-N-A Indices	Status Groups I No	I %	II No	II %	III No	III %	Total No	Total %
Strongly Agree (1.0-1.4)	17	19.5	21	10.2	10	11.1	48	12.5
Agree (1.5-2.4)	55	63.2	144	69.9	49	54.4	248	64.7
Uncertain (2.5-3.4)	14	16.1	38	18.4	25	27.8	77	20.1
Disagree (3.5-4.4)	1	1.2	3	1.5	5	5.6	9	2.4
Strongly Disagree (4.5-5.0)	0	0.0	0	0.0	1	1.1	1	0.3
Total	87	100.0	206	100.0	90	100.0	383	100.0

Groups	X^2	df	P	
I,II,III	18.86	8	< 0.02	
I,II	4.75	4	> 0.05	
II,III	11.09	4	< 0.05	(= 0.0280)
I,III	8.88	4	> 0.05	(= 0.0678)

Table 10. Significance of Differences Between Mean Ability-Norm-Action Indices Relative to Control of Water Supply: Differences, x/σ, and P for Status Groups; Household Heads Classified by Status Groups; Selected Census Tracts, Warwick, Rhode Island, 1969

Status Groups	Differences Between Means	x/σ	P
I and II	0.0721	1.0419	0.2938
II and III	0.1899	2.4954	0.0128*
I and III	0.2620	2.5711	0.0102*

Mean ability-norm-action indices for status groups:

I: 2.0491, II: 2.1212, III: 2.3111. All households: 2.1494.

*This is significant at the 0.05 level.

respondent an index was constructed to reflect belief in association between control and responsibility under conditions of no psychological conflict; this was designated the Rnc index. In addition, an index was constructed to reflect belief in this association under conditions of conflict; this was identified as the Rc index. The indices have a range from 1.0 to 5.0; an index between 1.0 and 2.4 indicates agreement with the idea that control and responsibility are associated. Uncertainty with respect to this association is indicated by an index of 2.5 to 3.4. Disagreement with the idea of this association is reflected by an index of 3.5 or more.

In analyzing the data, status groups were compared in terms of the distributions and means for each index; then, these characteristics of both indices were compared for each status group.

ASSOCIATION UNDER CONDITIONS OF NO PSYCHOLOGICAL CONFLICT

Under conditions of no psychological conflict, there was a predominance of agreement (93.2% of all respondents) with the idea that control of situations and responsibility for them are associated; there was no disagreement with this idea. With respect to proportions expressing agreement or uncertainty, status group I consistently had an intermediate position between groups II and III. For group I, 19.5% expressed strong agreement (index 1.0-1.4), 73.6% expressed agreement (index 1.5-2.4), and 6.9% expressed uncertainty (index 2.5-3.4). Group II had the largest proportion (79.6%) expressing agreement and the smallest proportions expressing strong agreement (15.5%) and uncertainty (4.9%). Consistently, group III had the smallest proportion (67.8%) expressing agreement and the largest proportions expressing strong agreement (21.1%) and uncertainty (11.1%). For no combination of status groups were distributions significantly different (Table 11).

Table 11. Distribution of Responsibility Indices for Conditions of No Conflict (Rnc); X^2; Household Heads Classified by Status Groups; Selected Census Tracts, Warwick, Rhode Island, 1969

Range of Responsibility Indices	Status Groups I No	I %	II No	II %	III No	III %	Total No	Total %
Strongly Agree (1.0-1.4)	17	19.5	32	15.5	19	21.1	68	17.7
Agree (1.5-2.4)	64	73.6	164	79.6	61	67.8	289	75.5
Uncertain (2.5-3.4)	6	6.9	10	4.9	10	11.1	26	6.8
Disagree (3.5-4.4)	0	0.0	0	0.0	0	0.0	0	0.0
Strongly Disagree (4.5-5.0)	0	0.0	0	0.0	0	0.0	0	0.0
Total	87	100.0	206	100.0	90	100.0	383	100.0

Groups	X^2	df	P
I,II,III	6.13	8	> 0.05
I,II	1.34	4	> 0.05
II,III	5.91	4	> 0.05
I,III	1.14	4	> 0.05

The mean Rnc indices for status groups I, II, and III were 1.73, 1.74, and 1.79. None were significantly different (Table 12).

Table 12. Significance of Differences Between Mean Responsibility Indices for Conditions of No Conflict (Rnc): Differences, x/σ, and P for Status Groups; Household Heads classified by Status Groups; Selected Census Tracts, Warwick, Rhode Island, 1969

Status Groups	Differences Between Means	x/σ	P
I and II	0.01	0.1326	0.8966
II and III	0.05	0.5247	0.6030
I and III	0.05	0.5976	0.5552

Mean responsibility indices for conditions of no conflict (Rnc), for status groups:
I: 1.73, II: 1.74; III: 1.79. All households: 1.75.

ASSOCIATION UNDER CONDITIONS OF PSYCHOLOGICAL CONFLICT

Under conditions of psychological conflict, also, there was a predominance of agreement (70.4% of all respondents) with the idea of association between control of and responsibility for situations. With respect to proportions of respondents showing agreement, uncertainty, or disagreement, no status group has a consistently systematic relationship to the others. For agreement (index 1.5-2.4) with the idea, however, the proportions for the groups do not vary widely; they are 56.3%, 53.9%, and 56.7% for groups I, II, and III, in that sequence. For uncertainty, there is slight variation, with group II showing 28.7%; group I, 25.3%; and group III, 24.5%. However, for strong agreement (index 1.0-1.4) the percentages decrease with decreasing status and are 17.2%, 15.5%, and 13.3% for groups I, II, and III. Disagreement, on the other hand, increases with decreasing status, and for groups I, II, and III the percentages for this index range are 1.2%, 1.9%, and 5.5%. Yet, the distributions are not significantly different for any combination of status groups (Table 13).

The mean Rc indices for groups I, II, and III are 1.92, 2.02, and 2.14. None are significantly different, but those for groups I and III approach significance at the 0.05 level (Table 14).

RNC AND RC INDICES FOR STATUS GROUPS

With one exception, within each status group significant differences between responsibility indices for conditions of no conflict and those for conditions of conflict are shown for the distributions of the indices and for the mean indices; the exception is the difference between the mean indices for group I.

Distributions of the Rnc and Rc indices are not significantly different within any status group. However, between conditions of no conflict and of conflict, status groups show some fairly consistent patterns of change. The basic pattern is a reduction in agreement and an increase in uncertainty and disagreement. The reduction in percentage of respondents showing strong agreement (index 1.0-1.4) is greatest in status group III; this is from 21.1% to 13.3%; there is no change for group II, and the change for group I is from 19.5% to 17.2%. Within the range of agreement (index 1.5-2.4), the greatest reduction is in group II, where the change is from 79.6% to 53.9%; group I is intermediate with a change from 73.6% to 56.3%; group III showed least change with percentages being 67.8% and 56.7%.

With respect to increase in uncertainty, the percentages differ most in group II, where they changed from 4.9% and 28.7%; group I was intermediate, with percentages of 6.9% and 25.3%; in group III, where the increase in uncertainty was least, the percentages were 11.1% and 24.5%.

With respect to increase in disagreement, all groups changed from 0.0% to 1.2% for group I, to 1.9% for group II, and to 5.5% for group III.

Hence, as far as decreased agreement and increased uncertainty are concerned, group II has changed more than groups I and III. These changes are intermediate for group I and smallest for group

Table 13. Distributions of Responsibility Indices for Conditions of Conflict (Rc); X^2; Household Heads Classified by Status Groups; Selected Census Tracts, Warwick, Rhode Island, 1969

Range of Responsibility Indices	Status Groups I No	I %	II No	II %	III No	III %	Total No	Total %
Strongly Agree (1.0-1.4)	15	17.2	32	15.5	12	13.3	59	15.4
Agree (1.5-2.4)	49	56.3	111	53.9	51	56.7	211	55.0
Uncertain (2.5-3.4)	22	25.3	59	28.7	22	24.5	103	26.9
Disagree (3.5-4.4)	1	1.2	4	1.9	4	4.4	9	2.4
Strongly Disagree (4.5-5.0)	0	0.0	0	0.0	1	1.1	1	0.3
Total	87	100.0	206	100.0	90	100.0	383	100.0

Groups	X^2	df	P
I,II,III	6.67	8	> 0.05
I,II	0.65	4	> 0.05
II,III	4.43	4	> 0.05
I,III	3.13	4	> 0.05

Table 14. Significance of Differences Between Mean Responsibility Indices for Conditions of Conflict (Rc): Differences, x/σ, and P for Status Groups; Household Heads Classified by Status Groups; Selected Census Tracts, Warwick, Rhode Island, 1969

Status Groups	Differences Between Means	x/σ	P
I and II	0.10	1.0000	0.3174
II and III	0.12	1.1719	0.2420
I and III	0.22	1.6884	0.0930*

Mean responsibility indices for condition of conflict (Rc), for status groups:
I: 1.92; II: 2.02; III: 2.14. All households: 2.03.

*This approaches significance at the 0.05 level.

III. Group III, on the other hand, has experienced the greatest reduction in strong agreement and the greatest increase in disagreement; group II had the least change in strong agreement and group I had the smallest change in disagreement (Table 15).

With respect to mean Rnc and mean Rc indices, each status group shows a transition toward less agreement; yet, all mean indices are within the 1.5-2.4 range of agreement. For group I, the indices are 1.73 and 1.92; for group II, 1.74 and 2.02; for group III, 1.79 and 2.14. The difference between means is smallest from group I and largest for group III. And only for group I is the difference between these means not significant (Table 16).

Table 15. Distributions of Responsibility Indices for Conditions of No Conflict (Rnc) and of Conflict (Rc) f Status Groups; X^2; Household Heads Classified by Status Groups; Selected Census Tracts, Warwic Rhode Island, 1969

Range of Responsibility Indices	Status Groups I				II				III				Total			
	Rnc		Rc		Rnc		Rc		Rnc		Rc		Rnc		Rc	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Strongly Agree (1.0-1.4)	17	19.5	15	17.2	32	15.5	32	15.5	19	21.1	12	13.3	68	17.7	59	15.
Agree (1.5-2.4)	64	73.6	49	56.3	164	79.6	111	53.9	61	67.8	51	56.7	289	75.5	211	55.
Uncertain (2.5-3.4)	6	6.9	22	25.3	10	4.9	59	28.7	10	11.1	22	24.5	26	6.8	103	26.
Disagree (3.5-4.4)	0	0.0	1	1.2	0	0.0	4	1.9	0	0.0	4	4.4	0	0.0	9	2.
Strongly Disagree (4.5-5.0)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.1	0	0.0	1	0.
Total	87	100.0	87	100.0	206	100.0	206	100.0	90	100.0	90	100.0	383	100.0	383	100.

Groups	X^2	df	P
I	267.1295	4	< 0.001
II	49.0118	4	< 0.001
III	9.9734	4	< 0.001
Total	68.7670	4	< 0.001

COMMENT

The pattern of change shown by responsibility indices for conditions of no conflict and for conditions of conflict was that of decreased agreement with the idea that control of situations and responsibility for them are associated, increased uncertainty about the idea, and increased disagreement with the idea. In each condition, however, most respondents expressed agreement with the idea. The lowest status group, group III, experienced fewer changes in distribution of indices than groups I and II, but these changes were more widely dispersed than the changes for the other groups and were adequate to give significantly different means. Group II experienced the largest number of changes, the dispersion of which was adequately great, also, to give significantly different means. Group I experienced a somewhat larger number of changes than group III, but the dispersion was not adequate to make the means for the distributions significantly different. These data suggest how conflict situations might affect perspectives on man's ability, obligation, and accomplishment with respect to control of water pollution and water supply.

Table 16. Significance of Differences Between Mean Responsibility Indices for Conditions of No Conflict (Rnc) and of Conflict (Rc) for status Groups: Differences, x/σ, and P for Status Groups; Household Heads Classified by Status Groups; Selected Census Tracts, Warwick, Rhode Island, 1969

Status Group	Difference Between Means	x/σ	P
I	0.19	1.7210	0.0854*
II	0.28	4.1791	< 0.0000634**
III	0.35	2.8783	0.0040**
All Households	0.28	5.3699	< 0.00000057**

Mean responsibility indices for status groups:

Group	No Conflict	Conflict
I	1.73	1.92
II	1.74	2.02
III	1.79	2.14
A11	1.75	2.03

*This approaches significance at the 0.05 level.
**This is significant at the 0.05 level.

CONCLUSIONS

Data examined in this study were used to check the hypothesis that significant differences do exist among social status groups with respect to attitudes and conceptualization pertaining to water pollution and water supply. The data tend to support the hypothesis, but do so with qualification; variations among the status groups exist, but not all are significant. Significant differences, when they appear or are approached, are primarily between the low and high status groups (III and I), with significant differences between the low and middle status groups (III and II) appearing occasionally, as well.

Persons interested in solutions to water pollution and water supply problems might well look at these results in terms of their implications for motivation and accurate conceptualization. With respect to motivation, they might note that tension about water pollution is felt in each status group, but the tension is greater in the two higher status groups than in the lower one. To the extent that this reflects something of motivation to act with respect to the pollution problem, one could expect more ready movement on the part of the higher status groups than on the part of the lower one.

With respect to accuracy of conceptualization, the data indicate that, on the whole, respondents were accurate in their conceptualization about ground water to a greater extent than they were about surface water. With respect to ground water, the higher status groups were accurately informed to a greater extent than the lower status groups, while the higher status groups were accurately informed to a lesser extent than the lower status groups with respect to surface water. None of the differences between status groups for either ground water or surface water were significantly different. On the whole, though, status groups were more uninformed than informed about both ground water and surface water. This may suggest the immensity of a potential educational task.

Data reflecting nothing about either motivation or conceptualization, but approaching the area of man's normative orientation to control of water pollution and supply, indicate that higher status groups are more inclined to believe in man's control of water pollution and supply than are the lower status groups. The lower status group showed disbelief and uncertainty about this control more prevalently than the higher status groups. Both under conditions of no psychological conflict and of psychological conflict, all status groups showed a prevalent belief that control of situations and responsibility for them are associated; this belief is more prevalent under conditions of no psychological conflict than under conditions of conflict. Under conditions of no psychological conflict, the strongest expression of this association was in the middle status group and the weakest was in the low status group. Under conditions of conflict, strong belief in the association decreased with status. Uncertainty was more prevalent in the middle status group than in the other two, for which it was prevalent to about the same extent. General agreement with the belief, though, was slightly greater in the highest and the lowest status groups than in the middle status group. With all this variation, the expressions of belief in the association of control and responsibility differed significantly, on the whole, under conditions of conflict and conditions of no conflict.

No claim is made here that these relationships and characteristics prevail throughout our society. They may, however, provide impetus for further research and cast perspective on the complexity of establishing alternative solutions for water resource problems.

Appendix A
Questionnaire

UNIVERSITY OF RHODE ISLAND
WATER RESOURCES CENTER
Kingston, Rhode Island

Head of Household
Warwick, Rhode Island

July 30, 1969

Dear Sir or Madam:

The Water Resources Center at the University of Rhode Island is studying problems related to water. Some of them are nation-wide in significance; others are of local significance. Among them are factors related to water quality and water pollution.

Your help is requested. We would appreciate your filling out the questionnaire which begins below and returning it in the enclosed envelope at no cost to you.

We guarantee your privacy. Your address, but not your name, was secured in a sample of dwelling units in selected parts of Rhode Island. A sample of dwelling units helps people who fill out questionnaires remain anonymous; no information which they submit is used in connection with their names. Neither is it used in connection with the addresses included in the sample.

We will be grateful for the assistance you will give us by filling out and returning the questionnaire. Your contribution to this study can help provide a basis for solving future problems related to water.

Please accept our thanks for your help.

Sincerely,
Irving A. Spaulding
Sociologist
Dept. of Food and Resource Economics

I. For each of the following statements, check one number on the right side of the page to indicate one of the following responses to the statement: 1) strongly agree; 2) agree; 3) uncertain; 4) disagree; 5) strongly disagree. Indicate the responses – 1, 2, 3, 4, or 5 – which is most nearly accurate for you.

A. Ground water: water from a saturated zone in the earth.

1. Human beings have influence and control over ground water only after, through springs or wells, it comes to (or is brought to) the surface of the earth. 1 2 3 4 5
2. The supply of ground water will probably never be exhausted. 1 2 3 4 5
3. The capacity of nature, in any given situation, to keep ground water from becoming polluted is unlimited. 1 2 3 4 5
4. Human beings have no influence and control over ground water under the surface of the earth. 1 2 3 4 5
5. Ground water usually gets into the earth a long distance from the place it comes out, or is brought out. 1 2 3 4 5
6. Human beings cannot pollute ground water. 1 2 3 4 5
7. Ground water is usually located far beneath the surface of the earth. 1 2 3 4 5
8. As it comes to, or is brought to, the surface of the earth, ground water is usually suitable for human use. 1 2 3 4 5

B. Surface water: exposed bodies of fresh water.

For each statement, check the answer most nearly accurate to you: 1) strongly agree; 2) agree; 3) uncertain; 4) disagree; 5) strongly disagree.

1. Surface water usually falls on the earth a long distance from the place it is eventually used. 1 2 3 4 5
2. As it is usually found in streams, ponds, and reservoirs, surface water is suitable for human use. 1 2 3 4 5
3. The supply of surface water will probably never be exhausted. 1 2 3 4 5
4. Human beings cannot pollute surface water. 1 2 3 4 5
5. The capacity of nature, in any given situation, to purify polluted surface water is unlimited. 1 2 3 4 5
6. Most surface water falls on very high places and runs down to low ones. 1 2 3 4 5
7. Human beings have no influence and control over surface water in streams, ponds, and reservoirs. 1 2 3 4 5

8. Human beings have influence and control over surface water from the time it falls until the time it is used. 1 2 3 4 5

C. Action

1. Human beings *can* control water to be sure they have an adequate supply. 1 2 3 4 5
2. Human beings *should* control water pollution. 1 2 3 4 5
3. Human beings *do* control water to be sure they have an adequate supply. 1 2 3 4 5
4. Human beings *can* control water pollution. 1 2 3 4 5
5. Human beings *should* control water to be sure they have an adequate supply. 1 2 3 4 5
6. Human beings *do* control water pollution. 1 2 3 4 5

II. Education of Household Head

1. Formal school training. Check the highest grade completed.
   a. Grade school : 1 2 3 4 5 6 7 8
   b. High school : 1 2 3 4
   c. College : 1 2 3 4
   d. Graduate study : 1 2 3 4
   e. Other : 1 2 3 4 5 6 7 8
   Degrees: MS or MA _____ ; Ph.D._____ ; Other _____
2. Non-college professional, technical, or trade school training? Yes_____; No _____.

III. Many of the following statements will seem very similar. They are different though. For each statement, check the number which gives the most nearly accurate response for you: 1) strongly agree; 2) agree; 3) uncertain; 4) disagree; 5) strongly disagree.

1. A human being has responsibility for events and occurrences he *cannot* influence and control. 1 2 3 4 5
2. A human being has responsibility for events and occurrences he *should not* influence and control, *but does.* 1 2 3 4 5
3. A human being has responsibility for events and occurrences he *should, can,* and *does* influence and control. 1 2 3 4 5
4. A human being has responsibility for events and occurrences he *does* influence and control. 1 2 3 4 5
5. A human being has responsibility for events and occurrences he *can* — i.e. has the capability to — influence and control, but *doesn't.* 1 2 3 4 5
6. A human being has responsibility for events and occurrences he *should* influence and control, *but cannot and doesn't.* 1 2 3 4 5
7. A human being has responsibility for events and occurrences he *should not* influence and control, *can, but does not.* 1 2 3 4 5
8. A human being has responsibility for events and occurrences he *should* influence and control, *but doesn't.* 1 2 3 4 5
9. A human being has responsibility for events and occurrences he *should* and *can* influence and control, *but doesn't.* 1 2 3 4 5
10. A human being has responsibility for events and occurrences he *does not* influence and control. 1 2 3 4 5
11. A human being has responsibility for events and occurrences he *should* and *can* influence and control. 1 2 3 4 5
12. A human being has responsibility for events and occurrences he *should not* influence and control. 1 2 3 4 5
13. A human being has responsibility for events and occurrences he *should not* influence and control, *but can and does.* 1 2 3 4 5
14. A human being has responsibility for events and occurrences he *should* influence and control, *cannot, yet does.* 1 2 3 4 5
15. A human being has responsibility for events and occurrences he *should* influence and control, *but cannot.* 1 2 3 4 5
16. A human being has responsibility for events and occurrences he *should not* influence and control, *but can.* 1 2 3 4 5
17. A human being has responsibility for events and occurrences he *should* influence and control. 1 2 3 4 5

18. A human being has responsibility for events and occurrences he *can* — i.e. has the capacity to — influence and control. 1 2 3 4 5

19. A human being has responsibility for events and occurrences he *cannot* influence and control, *but does.* 1 2 3 4 5

IV. E/T. For each of the following statements, *check the answer which is most nearly accurate for you.*

WITH RESPECT TO WATER POLLUTION, I FEEL:

RESENTFUL

Always ____ Very often ____ Often ____ Sometimes ____ Seldom ____ Very Seldom ____ Never ____
This feeling is usually:
Very strong ____ Strong ____ Moderate ____ Weak ____ Very weak ____

RELAXED

Always ____ Very often ____ Often ____ Sometimes ____ Seldom ____ Very seldom ____ Never ____
This feeling is usually:
Very strong ____ Strong ____ Moderate ____ Weak ____ Very weak ____

ANGRY OR MAD

Always ____ Very often ____ Often ____ Sometimes ____ Seldom ____ Very seldom ____ Never ____
This feeling is usually:
Very strong ____ Strong ____ Moderate ____ Weak ____ Very weak ____

MONOTONY

Always ____ Very often ____ Often ____ Sometimes ____ Seldom ____ Very seldom ____ Never ____
This feeling is usually:
Very strong ____ Strong ____ Moderate ____ Weak ____ Very weak ____

BORED

Always ____ Very often ____ Often ____ Sometimes ____ Seldom ____ Very seldom ____ Never ____
This feeling is usually:
Very strong ____ Strong ____ Moderate ____ Weak ____ Very weak ____

TENSE OR ANXIOUS

Always ____ Very often ____ Often ____ Sometimes ____ Seldom ____ Very seldom ____ Never ____
This feeling is usually:
Very strong ____ Strong ____ Moderate ____ Weak ____ Very weak ____

V.S-1 House value: How much would the house in which you are living sell for at the present time?

a. Under $10,000 ____
b. $10,000-14,999 ____
c. $15,000-19,999 ____
d. $20,000-24,999 ____
e. $25,000-29,999 ____
f. $30,000 or more ____

S-2 Income: Check the income range which indicates the total income for all your household members during 1968.

a. $0 -5,999 ____
b. $ 6,000-8,999 ____
c. $ 9,000-11,999 ____
d. $12,000-14,999 ____
e. $15,000-17,999 ____
f. $18,000-20,999 ____
g. $21,000-23,999 ____
h. $24,000-26,999 ____
i. $27,000-29,999 ____
j. $30,000-32,999 ____
k. $33,000-35,999 ____
l. $36,000 or more ____

S-3 Occupation of Household Head: Write in the *type of work* you did in 1968 to earn your living. Be as specific as possible.

____

____

____

***** THANK YOU ! *****

APPENDIX B

SOCIAL STATUS INDEX

Four components were used in construction of the social status index. These were *house value,* the household head's estimation of the price for which the house he occupied would sell on the current market; *household income,* the total household income for 1968; *highest education of the household head,* the highest grade of school completed by that person; and *occupation of the household head,* identified as "the type of work you did in 1968". (See Sections II, V.S-1, V.S-2, and V.S-3 of the questionnaire in Appendix A.) The classification system for each variable was divided in three sections designated low, middle, and high which were weighted 1, 2, and 3, respectively. These are shown below:

Weights	House Value	Income	Highest Education	Occupation
1	Under $15,000	Under $9,000	Less than 8 grades; 8 grades; some high school	Retired Laborer Service Workers Operatives
2	$15,000-24,000	$9,000-17,999	High school, some college	Craftsmen Sales workers Clerical workers
3	$25,000 or more	$18,000 or more	College or more	Professionals Managers

For each household head, weights for the variables were added and divided by four, multiplied by 100, this average became an index which made possible the grouping of households in broad status categories, or groups. Index intervals for the groups were: low, 100-166; middle, 167-233; and high, 234-300.

APPENDIX C

EUPHORIA-TENSION INDEX

A euphoria-tension level with respect to water pollution was determined for respondents. Each respondent was asked to indicate the frequency and intensity with which he felt anger, resentment, tension, relaxation, monotony, and boredom with respect to water pollution. (See Section IV of the questionnaire in Appendix A.) Frequencies, ranging from *always* to *never,* were weighted 6, 5, 4, 3, 2, 1 and 0 in decreasing sequence; intensities, ranging from *very strong* to *very weak,* were weighted 5, 4, 3, 2, and 1 in decreasing sequence. The euphoria-tension index for each respondent was then computed as illustrated here:

	Feeling	Weight	Frequency	Intensity	Product
Tension	Anger	3 3	4	36	
	Resentment	2 1	4	8	
	Tension	1 4	3	12	
				56	
Euphoria	Relaxation	1 2	3	6	
	Monotony	2 4	4	32	
	Boredom	3 0	0	0	
				38	

$$\frac{E\text{-}T}{N} = \frac{38 - 56}{6} = \frac{-18}{6} = -3.00$$

Indices, thus computed, were converted to a position on a 60-point continuous scale according to the set of equivalences shown below. (The above index of −3.00 becomes an index of 27.00 in the range of feelings of tension.) Respondents were then categorized on the basis of euphoria-tension levels in the ranges of anger, resentment, tension, relaxation, monotony, or boredom.

	E/T Index	Continuous Scale	Midpoint	Conversion of E/T Index to Continuous Scale **Emotional Range**
	30.0	60.0		
EUPHORIA – PLUS	29.0 - 29.9	59.0 - 59.9	59.5	
	28.0 - 28.9	58.0 - 58.9	58.5	
	27.0 - 27.9	57.0 - 57.9	57.5	
	26.0 - 26.9	56.0 - 56.9	56.5	
	25.0 - 25.9	55.0 - 55.9	55.5	
	24.0 - 24.9	54.0 - 54.9	54.5	
	23.0 - 23.9	53.0 - 53.9	53.5	
	22.0 - 22.9	52.0 - 52.9	52.5	
	21.0 - 21.9	51.0 - 51.9	51.5	Boredom
	20.0 - 20.9	50.0 - 50.9	50.5	
	19.0 - 19.9	49.0 - 49.9	49.5	
	18.0 - 18.9	48.0 - 48.9	48.5	
	17.0 - 17.9	47.0 - 47.9	47.5	
	16.0 - 16.9	46.0 - 46.9	46.5	
	15.0 - 15.9	45.0 - 45.9	45.5	
	14.0 - 14.9	44.0 - 44.9	44.5	
	13.0 - 13.9	43.0 - 43.9	43.5	
	12.0 - 12.9	42.0 - 42.9	42.5	
	11.0 - 11.9	41.0 - 41.9	41.5	
	10.0 - 10.9	40.0 - 40.9	40.5	Monotony
	9.0 - 9.9	39.0 - 39.9	39.5	
	8.0 - 8.9	38.0 - 38.9	38.5	
	7.0 - 7.9	37.0 - 37.9	37.5	
	6.0 - 6.9	36.0 - 36.9	36.5	
	5.0 - 5.9	35.0 - 35.9	35.5	
	4.0 - 4.9	34.0 - 34.9	34.5	
	3.0 - 3.9	33.0 - 33.9	33.5	
	2.0 - 2.9	32.0 - 32.9	32.5	Relaxation
	1.0 - 1.9	31.0 - 31.9	31.5	
	.1 - .9	30.1 - 30.9	30.5	
	0.0	30.0	30.0	Equilibrium
MINUS – TENSION	0.9 - 0.1	29.1 - 29.9	29.5	
	1.9 - 1.0	28.1 - 29.0	28.5	
	2.9 - 2.0	27.1 - 28.0	27.5	Tension
	3.9 - 3.0	26.1 - 27.0	26.5	
	4.9 - 4.0	25.1 - 26.0	25.5	
	5.9 - 5.0	24.1 - 25.0	24.5	
	6.9 - 6.0	23.1 - 24.0	23.5	
	7.9 - 7.0	22.1 - 23.0	22.5	
	8.9 - 8.0	21.1 - 22.0	21.5	
	9.9 - 9.0	20.1 - 21.0	20.5	

10.9 - 10.0	19.1 - 20.0	19.5	Resentment
11.9 - 11.0	18.1 - 19.0	18.5	
12.9 - 12.0	17.1 - 18.0	17.5	
13.9 - 13.0	16.1 - 17.0	16.5	
14.9 - 14.0	15.1 - 16.0	15.5	
15.9 - 15.0	14.1 - 15.0	14.5	
16.9 - 16.0	13.1 - 14.0	13.5	
17.9 - 17.0	12.1 - 13.0	12.5	
18.9 - 18.0	11.1 - 12.0	11.5	
19.9 - 19.0	10.1 - 11.0	10.5	
20.9 - 20.0	9.1 - 10.0	9.5	
21.9 - 21.0	8.1 - 9.0	8.5	
22.9 - 22.0	7.1 - 8.0	7.5	Anger
23.9 - 23.0	6.1 - 7.0	6.5	
24.9 - 24.0	5.1 - 6.0	5.5	
25.9 - 25.0	4.1 - 5.0	4.5	
26.9 - 26.0	3.1 - 4.0	3.5	
27.9 - 27.0	2.1 - 3.0	2.5	
28.9 - 28.0	1.1 - 2.0	1.5	
29.9 - 29.0	0.1 - 1.0	.5	
30.0	0.0		

APPENDIX D

INFORMATION INDICES (ground water and surface water)

Indices were constructed to facilitate comparison of status groups on the basis of knowledge about pollution and supply of ground water and surface water. With respect to each, eight general statements about pollution, control, and supply were included in the questionnaire (See Appendix A, Sections I-A and I-B). Each of these statements had been rated as essentially "true", "false", or "questionable" by three persons conversant with water resource problems. With respect to each statement, each respondent was asked to indicate which one of the following — strong agreement, agreement, uncertainty, disagreement, or strong disagreement — was the most nearly accurate response for him.

GROUND WATER INDEX

In the construction of a ground water information index, the responses for a respondent were judged to be "right" if they showed agreement with a "true" statement, disagreement with a "false" statement, or uncertainty with respect to a "questionable" statement about ground water. Other responses were regarded as "wrong". "Right" answers were regarded as reflecting accuracy of conceptualization about ground water, while "wrong" answers were regarded as reflecting inaccurate conceptualization.

The index was constructed by subtracting the number of "wrong" responses from the number of "right" ones and dividing this difference by 8, the number of statements considered. These quotients had a range from +1.00 to —1.00 (+100 to —100). Conversion of these to a position within a linear sequence of positive numbers was done with the equivalences shown below:

Interval	Information Indices	Linear Positive Sequence
1	+1.00	20.0
2	+0.90 - 0.99	19.0 - 19.9
3	+0.80 - 0.89	18.0 - 18.9
4	+0.70 - 0.79	17.0 - 17.9
5	+0.60 - 0.69	16.0 - 16.9
6	+0.50 - 0.59	15.0 - 15.9
7	+0.40 - 0.49	14.0 - 14.9
8	+0.30 - 0.39	13.0 - 13.9
9	+0.20 - 0.29	12.0 - 12.9
10	+0.10 - 0.19	11.0 - 11.9
11	+0.00 - 0.09	10.0 - 10.9
12	−0.10 - 0.01	9.0 - 9.9
13	−0.20 - 0.11	8.0 - 8.9
14	−0.30 - 0.21	7.0 - 7.9
15	−0.40 - 0.31	6.0 - 6.9
16	−0.50 - 0.41	5.0 - 5.9
17	−0.60 - 0.51	4.0 - 4.9
18	−0.70 - 0.61	3.0 - 3.9
19	−0.80 - 0.71	2.0 - 2.9
20	−0.90 - 0.81	1.0 - 1.9
21	−1.00 - 0.91	0.0 - 0.9

For use in the analysis of data, the linear sequence is divided into four intervals which reflect the number of "right" and "wrong" responses and are as follows:

Interval	Answers	
	Number "right"	Number "wrong"
15.0 - 20.0	8	0
	7	1
	6	2
10.0 - 14.9	5	3
	4	4
5.9 - 9.9	3	5
	2	6
0.0 - 4.9	1	7
	0	8

SURFACE WATER INDEX

The procedures described above were used also in the construction of the surface water information index.

APPENDIX E

ABILITY-NORM-ACTION INDICES (water pollution and water supply)

By use of six affirmative statements concerning the human being's ability, obligation, and accomplishment with respect to control of water pollution and water supply, indices were constructed to reflect composite beliefs with respect to such control. Each respondent was asked to indicate one of the following as the most nearly accurate description of this response to each statement: strong agreement, agreement, uncertainty, disagreement, or strong disagreement. In this sequence, the responses were weighted 1, 2, 3, 4, and 5.

The statements used are in Section I-C of the questionnaire included in Appendix A. Statements 2, 4, and 6 were used in constructing the ability-norm-action index for water pollution (ANAp). Weights for responses to the statements were averaged, and the quotient was regarded as an index of feeling with respect to control of water pollution.

Statements 1, 3, and 5 were used in the construction of the index for water supply (ANAws) according to the procedures used in constructing the ANAp index. The resulting quotient was used as an index of feeling with respect to control of water supply.

Indices were used to categorize respondents as follows:

Index Interval	Response
1.0 - 1.4	Strong agreement
1.5 - 2.4	Agreement
2.5 - 3.4	Uncertainty
3.5 - 4.4	Disagreement
4.5 - 5.0	Strong disagreement

Indices from 1.0-1.4 reflect the strongest feeling that man can, should, and does control water pollution and water supply; indices from 4.5-5.0 reflect the weakest feeling concerning these types of control.

APPENDIX F

RESPONSIBILITY INDICES

(for conditions of no psychological conflict and for conditions of conflict)

Indices were constructed to reflect people's association of responsibility for events and occurrences with their ability, obligation, and accomplishment with respect to influence and control of those events and occurrences. Statements used in the development of these responsibility indices are in Section III of the questionnaire in Appendix A. Each respondent was asked to indicate whether the most nearly accurate description of his response to each statement was strong agreement, agreement, uncertainty, disagreement, or strong disagreement. In sequence, these were weighted 1, 2, 3, 4, and 5. From these, indices of responsibility under conditions of no psychological conflict and under conditions of conflict were devised. To establish conditions of no conflict, either expressions with affirmative connotations or those with negative connotations were used. Key affirmative expressions were *can, should,* and *does;* key negative expressions were *cannot, should not,* and *does not.* To establish conditions of conflict, an affirmative expression (or expressions) for one or two of the variables — ability, obligation, and accomplishment — was/were combined with negative expressions (or an expression) for the remaining variables or variable.

CONDITIONS OF NO PSYCHOLOGICAL CONFLICT

In computing the index for conditions of no conflict, consideration was given to non-conflicting affirmative statements and to non-conflicting negative statements. Statements 4, 17, and 18 constituted the former, while statements 1, 10 and 12 comprise the latter. Key expressions in the former are *can, should,* and *does;* key expressions in the latter are *cannot, should not,* and *does not.*

The index uses both affirmative and negative statements in the following way. Weights for responses to the affirmative statements were added and divided by the number of statements, 3; this was also done with respect to weights for responses to negative statements. The quotient for the negative statements was then converted into its equivalent for positive statements; for example, disagreement with a negative statement (weight, 4) is regarded as the equivalent of agreement with a positive statement (weight, 2). The quotient for the affirmative statements and the converted quotient for the negative statements were averaged, and this new quotient was regarded as an index of responsibility under conditions of no psychological conflict.

CONDITIONS OF CONFLICT

In computing the index for conditions of conflict, statements 2, 5, 8, 15, 16, and 19 were used. These, in the above sequence, contained the following conflicts: should not/does, can/doesn't, should/doesn't, should/cannot, should not/can, and cannot/does. The weights for responses to each of these statements were added and divided by the number of statements, 6. The quotient was regarded as an index of responsibility under conditions of psychological conflict.

USE OF INDICES IN ANALYSIS OF DATA

In the analysis of data, intervals within the range from 1 to 5 were used to establish categories reflecting responses to the statements in the foliowing manner:

Index Interval	Response
1.0 - 1.4	Strong agreement
1.5 - 2.4	Agreement
2.5 - 3.4	Uncertainty
3.5 - 4.4	Disagreement
4.5 - 5.0	Strong disagreement

Indices in the 1.0-1.4 interval are regarded as reflecting the strongest feelings of responsibility, while those in the 4.5-5.0 interval are regarded as reflecting the weakest feelings of responsibility.

FOOTNOTES

1. Charles A. Ibsen and John A. Ballweg, *Public Perception of Water Resource Problems*, Bulletin 29, Water Resources Research Center, Virginia Polytechnic Institute, Blacksburg, Virginia, 1969.

2. For extended description of the sampling procedure, see: Irving A. Spaulding, *Household Water Use and Social Status*, Bulletin 392, Agricultural Experiment Station, University of Rhode Island, Kingston, Rhode Island, 1967, pp. 3-6.

3. Thirty-nine addresses were eliminated from a prior sample since questionnaires for those addresses had been undelivered when they were used in a prior study. These can be accounted for as part-time summer residences.