

**CITIZEN PARTICIPATION IN THE YORK RIVER
BASIN STUDY: THE USE OF THE VALUE
TRADE-OFF QUESTIONNAIRE***

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ABSTRACT

Effective environmental plans for a River Basin can only be accomplished by including the public in the planning process. Conventional public participation methods such as hearings cannot by themselves effectively be used as a screening tool, for they rarely represent a true cross-section of the Basin's population, and their results are often chaotic, confusing and difficult to interpret. A new tool for including the public's values was tested and implemented in the Virginia, York River Basin Study. A value trade-off questionnaire comprised of four questions was administered to a selected group of twenty-four citizens representing six different groups of people in the York River Basin. Each question addressed a different trade-off germane to the selection of the York River Basin Environmental plans. The result indicated a strong desire for environmental protection and the willingness to pay for that protection through curtailed economic development, if necessary. The questionnaire proved easy to administer, interpret, and provided a quantitative measure of peoples preferences necessary for effective implementable planning.

Introduction

Citizen participation in environmental planning may be defined as the active involvement of persons outside of the planning staff in

* The approach, views, and conclusions presented in this document are those of the author and should not be interpreted as representing the policy of the Virginia State Water Control Board.

the development of projects as well as final plan selection. The principal objectives in involving the public are:

- public education
- increased credibility through open hearings
- increased acceptance and subsequent implementation
- incorporation of local citizen values into the final plan
- addressing and resolving the major trade-offs that have surfaced as a result of the study

The realization of all these objectives can be accomplished by the use of a carefully defined and well carried out citizen participation program.

Large scale citizen participation programs are relatively new and are partially due to the numerous legislations passed giving citizens certain environmental rights.

Legislation in the states, focusing on private citizen's environmental rights, began in Michigan and Illinois in 1970. The Michigan Environmental Protection Act of 1970 authorizes any, "private or public entity to sue any other private or public entity for equitable relief from pollution, impairment or destruction of the air, water and other natural resources and the public trust therein [1]." The Illinois electorate in amending their constitution declared that "each and every person has a right to a healthful environment [1]." They also allowed the common citizen to sue any, "party, governmental or private" to enforce this right. Additional states such as Minnesota, Massachusetts, Connecticut, Indiana and California [2] have seen a need to enact similar legislation to give to the private citizen the power to sue if abuses of a "common" are clearly intended.

It would appear that to allow the polluter to commence his deed and enjoin him thereafter is a very inefficient way of realizing the goal of a satisfied public. It is for exactly this reason that the Water Resource Council in September of 1973, proposed guidelines which included citizen participation in the initial planning phase of all water resources related projects. To be more specific the Water Resource Council stated, "Direct input from the public involved at the local and regional level is important and will be accomplished by:

- a. soliciting public opinion early;
- b. encouraging periodic transfers of information;
- c. holding meetings that explain the nature and scope of the study; and

- d. making available all plans, reports, data analysis, interpretation and other pertinent information for public inspection and identification and continually working with a broad spectrum of public interest groups [3].”

Whereas the Water Resource Council has no real power to enforce its principles, various federal agencies have used their permit issuing power to demand citizen participation in all projects under their jurisdiction. For example, the Environmental Protection Agency (EPA) requires town hearings in all funded projects to inform and involve the public in the decision making. The EPA views public involvement as an “integral part of the planning process” [4] and advocates such techniques as depositories, exhibits, mailings, newsletters, news media, publications, speeches, seminars, information solicitation, public hearings, surveys, questionnaires, advisory groups, correspondence, informal contacts, liaison with citizen groups, list development, public meetings, simulation games, task forces, and work shops. It is noteworthy that whereas EPA advocates twenty-one interactional techniques it requires only public hearings.

The Army Corps of Engineers, after bearing many an environmental albatross, now require, as EPA, public hearings prior to selection of final plans [5-9]. Public hearings, although an excellent way of transferring knowledge from the engineer to the public, are a very difficult means to obtain an unambiguous input as to the preference of the people. Hence, a supplemental tool is necessary for an effective citizen participation program. This new tool must have the property of obtaining the values or preferences of the people and enable the engineer or planner to develop a better plan. Such a tool was developed and tested by the York River Basin Citizen Participation Program (see Figure 1 for location map of the York River).

The Citizen Participation Program

In order to effectively communicate with the citizens of the York River Basin, the York Citizen Advisory Committee was formed by the Virginia State Water Control Board. The committee is comprised of twenty-four members and represents the following groups: federal government, state government, local government, industry, personal interest and others.

The citizen participation program was developed recognizing the importance of effective transfer of knowledge from the engineers

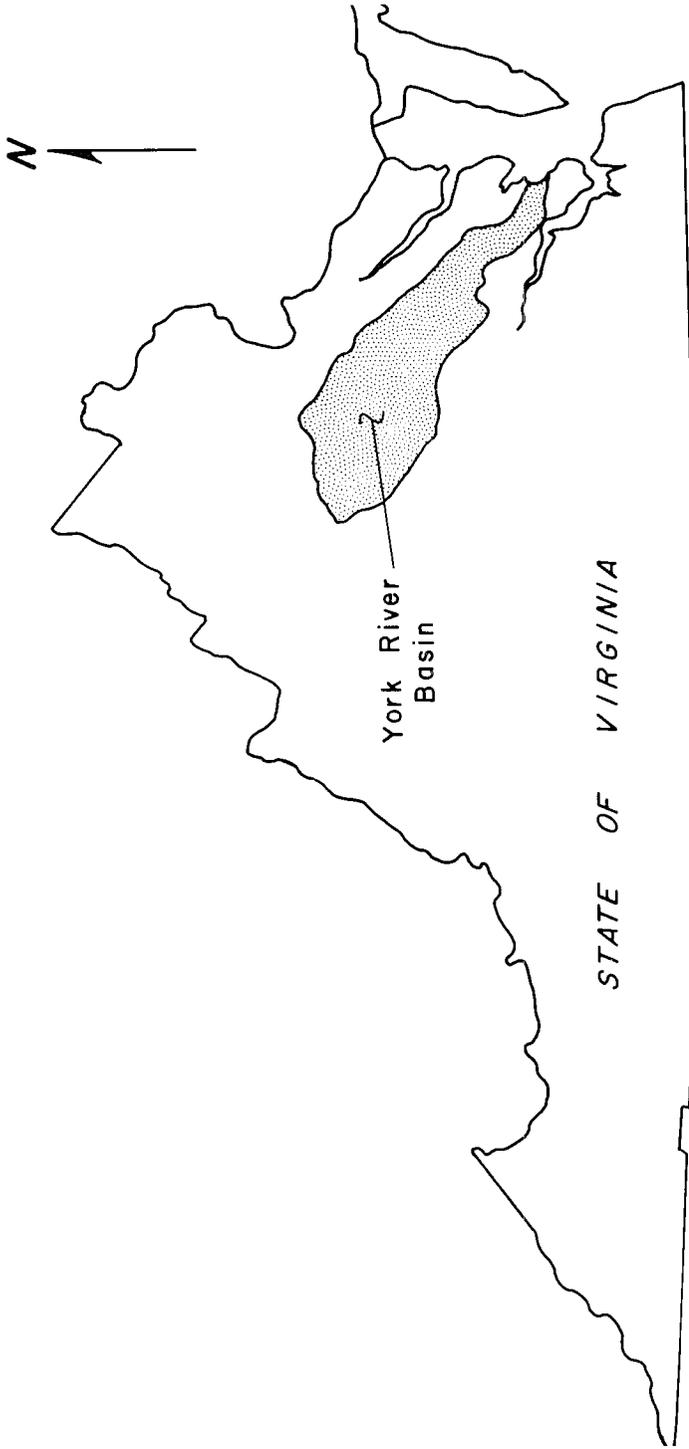


Figure 1. York River Basin location map.

to the people and efficient and accurate transfer of citizen values from the people to the engineers. Public meetings are an excellent way of addressing the transfer of knowledge but a poor way of assessing the environmental preferences (values). For this reason a new socio-environmental tool was developed—a value trade-off questionnaire. When used in conjunction with public meetings, it can become a powerful decision making tool.

The Value Trade-Off Questionnaire

The value trade-off questionnaire, as used in this study, is a series of questions that identify significant trade-offs. During the York River Basin study it allowed each committee member to respond individually and it effectively identified preferences to the significant trade-offs presented by each question.

The participants were first asked to identify which of the six groups they represented. Then each participant was asked to respond to the argument or question being presented as to whether he strongly agrees, agrees, neither agrees nor disagrees, disagrees, or strongly disagrees. Responses were analyzed statistically for the total sample as well as for the sub-groups.

The following paragraphs describe and discuss the questions in this questionnaire.

Question 1

Jim and Bob are discussing the York River Basin. Bob feels that he is willing to spend more money in taxes to clean up the river and feels that all industries should do the same. He feels the regulations on point discharges are not stringent enough and even though it will cost him more in taxes, he is willing to pay whatever increment necessary. With reference to what Bob has stated, do you: strongly agree, agree, neither nor disagree, disagree, strongly disagree.

Question one has been written to investigate the Advisory Committee's direct willingness to pay for environmental quality. The question is worded so as to personally involve the Committee member in this decision. Noteworthy is the statement, "he is willing to pay whatever increment necessary" implying total commitment to the environment.

Question 2

John and Pat are discussing economic development in the York River Basin. John feels that economic development should be the primary goal and that recreation and the environment should be considered only after the primary goal is satisfied. With reference to what John has stated, do you: strongly agree, agree, neither agree nor disagree, strongly disagree, disagree.

Question two has been worded to emphasize the trade-off between environmental amenities (such as recreation) and economic development. Because economic development can result in a steady loss of recreational benefit, a long term trade-off is implied.

Question 3

Bill and Mike are discussing petroleum traffic on the York River. Bill feels that the basin should be dredged to allow bigger oil tankers to dock. He feels that the trade-off of increased oil pollution vs. economic development is well worth it. With reference to what Bill has stated, do you: strongly agree, agree, neither agree nor disagree, strongly disagree, disagree.

Question three was worded to specifically address the trade-off of oil pollution (chemical and biological) vs. economic development. Oil pollution is particularly important in the York River because 90 per cent of the commercial shipping traffic is petroleum oriented.

Question 4

Kent and Fred are discussing the problems of regional treatment plants. Often regional systems will develop user taxes for several municipalities. Kent feels that he does not trust any town but his own in developing user taxes. With reference to what Kent has stated, do you: strongly agree, agree, neither agree nor disagree, disagree, strongly disagree.

The concept of regional treatment systems (two or more towns) is new to the York River Basin. In order to test its acceptance, question four was formulated.

Results and Conclusions

The response to the questionnaire was excellent, obtaining twenty-four returns out of twenty-four committee members. However, one response was not included in the analysis due to its nonconformance to the specified format. The one hundred per cent return was attributed to the interest and the composition of the committee, the simplicity of the questionnaire, the questionnaire's ability to address relevant issues, and the fact that a self-addressed stamped envelope was included.

The total number of responses by type and group is given in Table 1. Table 2 is a summary of the responses and is used to analyze the sample as a whole.

TOTAL SAMPLE RESULTS AND CONCLUSIONS

The total sample results are given in Table 2. Table 2 is a comparison of the number of people who agreed, disagreed, or

Table 1. Type and Number of Responses for the 4 Questions by Group^a

	<i>Questions</i>											
	<i>1</i>			<i>2</i>			<i>3</i>			<i>4</i>		
	<i>a</i>	<i>b</i>	<i>c d e</i>	<i>a</i>	<i>b</i>	<i>c d e</i>	<i>a</i>	<i>b</i>	<i>c d e</i>	<i>a</i>	<i>b</i>	<i>c d e</i>
Group 1	1	1	3 1			1 2 3	2	1	3			1 5
Group 2			1 1			1 1			1 1			1 1
Group 3	2	4	1 1 1	1	1	3 4	2	1	3 3			1 1 6 1
Group 4	1		1			1 1			1			1 1
Group 5	2			1		1			2			1 1
Group 6	1	1				1 1			1 1			1 1
Total	7	6	5 4 1	2	3	8 10	4	4	4 10			1 5 10 7

^a a = Strongly Agree; b = Agree; c = Neither Agree nor Disagree; d = Disagree; e = Strongly Disagree.

Table 2. Type and Number of Responses by Total Sample

<i>Responses</i>	<i>Questions</i>			
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
Agree ^a	13	2	4	1
Disagree ^b	5	18	14	17
Neither	5	3	4	5
Total	23	23	22 ^c	23

^a Includes strongly agree and agree.

^b Includes strongly disagree and disagree.

^c Response omitted by committee member.

were neutral to each of the four questions in the questionnaire. For question 1, Table 2 shows that thirteen out of twenty-three or 56 per cent of the Advisory Committee agreed. Even the responses of the industrial group (group 4, Table 1) indicate that 50 per cent agreed with this question. Even more revealing, only 22 per cent of the Advisory Committee disagreed with this question.

The conclusion drawn from this analysis is that requiring stringent regulations for municipal and industrial point sources, will be a prime concern of the Advisory Committee even with the recognition of the cost associated with the clean up.

Table 2 depicts the results of question 2 showing that only two out of twenty-three or 9 per cent of the Advisory Committee

agreed, 78 per cent of the Advisory Committee disagreed, and 13 per cent neither agreed nor disagreed. To agree with question two is to agree with blind economic development, without consideration of environmental amenities such as recreation. This is not consistent with the values shown by the Advisory Committee. This conclusion would imply that the environmental amenities will have to be considered in the decision making process itself when planning for economic development.

Investigating Table 2 further shows that the responses to question three were as follows: only four out of twenty-three or 18 per cent agreed, 18 per cent neither agreed nor disagreed, while 64 per cent disagreed. Less than one-fifth of the Advisory Committee was willing to agree with having increased oil pollution in exchange for a better economic atmosphere.

The conclusion from the analysis of the responses to question three is that the economic development will have to be accompanied with no increase in environmental pollution, i.e.—greater clean up. This conclusion supports the conclusions drawn for questions one and two, and hence, through consistency, adds to their credibility. The Advisory Committee is implying a very slow or zero growth policy. Even the responses of the industrial group (group 4, Table 1) are consistent with the overall sample in this question.

Finally, Table 2 shows that for question four there is no problem in a new agency setting user charges for independent communities as the results show that only one person out of twenty-three agreed with question four (4%). Almost 74 per cent disagreed and 22 per cent neither agreed nor disagreed.

The conclusion from the analyses of the responses to question four is that the three new regional treatment systems planned for the York Basin will not meet with much citizen opposition regarding the administration of financial charges. Apparently, the Advisory Committee feels that whatever administration is in charge of the treatment system, equitable user charges will be developed.

GROUP RESULTS AND CONCLUSIONS

The number of members in each of the sub-groups are as follows:

<i>Group 1</i>	<i>Representing</i>	<i>Number in Group</i>
1	State Government	6
2	Federal Government	2
3	Local Government	9
4	Industry	2
5	Personal Interest	2
6	Other	3

The large number of people representing some form of government on the committee (groups 1, 2, and 3) is clearly depicted. The question arose as to whether the rest of the committee's responses were overshadowed by the first three groups. To investigate whether or not this relationship exists, the following analysis was performed: all governmental groups (1, 2, and 3) were combined and considered as one response; groups 4, 5, and 6 were combined (industrial, personal interest and other), and also were considered as one response; a chi square test was then utilized to assess the statistical difference between the two aggregated groups in each question. The results indicate that there is no statistically significant difference in responses.

The conclusion is apparent. Although the governmental groups dominate the Advisory Committee personnel, their responses are no different than the other groups tested in the Basin. Considering this information, the analysis performed on the sample as a whole can be taken as representing the majority as well as the minority groups.

Summary

A value trade-off questionnaire was developed and administered to twenty-four members of the York Citizens Advisory Committee. The purpose was to solicit responses and to identify preferences of the citizens of the Basin. As the number of governmental advisory committee members was relatively large, a test to determine if the responses were significantly different than those of the minority groups was performed. The results showed no difference.

Analysis of the committee's responses allowed the following general conclusions to be drawn:

- Stringent effluent guidelines will receive the Advisory Committee's approval.
- The Advisory Committee does not feel that clean-up costs are excessive. The Committee feels that all polluters should share the burden of cleaning up their discharges.
- Blind economic development without consideration of environmental amenities is not consistent with the values exhibited by the Advisory Committee.
- Economic development must be accompanied by an increased level of clean-up as no further increase in pollution will be tolerated.
- The aspect of trusting centralized agencies to develop equitable user charges for independent communities will not cause any concern with the Advisory Committee.

These conclusions have been used as an aid in formulating and selecting the final water quality management plan for the York River Basin.

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REFERENCES

1. Council on Environmental Quality, *Environmental Quality, The Second Annual Report*, August 1971.
2. Council on Environmental Quality, *Environmental Quality, The Third Annual Report*, August 1972.
3. Federal Register, 38:174, Part III, Monday, September 10, 1973.
4. United States Environmental Protection Agency, *Guidance For Facilities Planning*, January 1974.
5. L. A. Tinkham, The Public's Role in Decision Making for Federal Water Resource Development, Eighth Annual Water Resource Conference, 1971.
6. A. Hahn, The Corps of Engineers and Citizen Participation in the Susquehanna River Basin, in *Social and Economics Aspects of Water Resources Development*, Dworsky, Allee and Csallory, (eds.).
7. J. R. Finley, Participation in Water Resource Planning, in *Social and Economic Aspects of Water Resource Development*, Dworsky, Allee and Csallory, (eds.).
8. F. H. Murdock, The Susquehanna Public Information and Participation Experiment, in *Social and Economic Aspects of Water Resource Development*, Dworsky, Allee and Csallory, (eds.).
9. R. P. Sellevoid, Case Study: Public Involvement in Planning, in *Social and Economic Aspects of Water Resource Development*, Dworsky, Allee and Csallory, (eds.).

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