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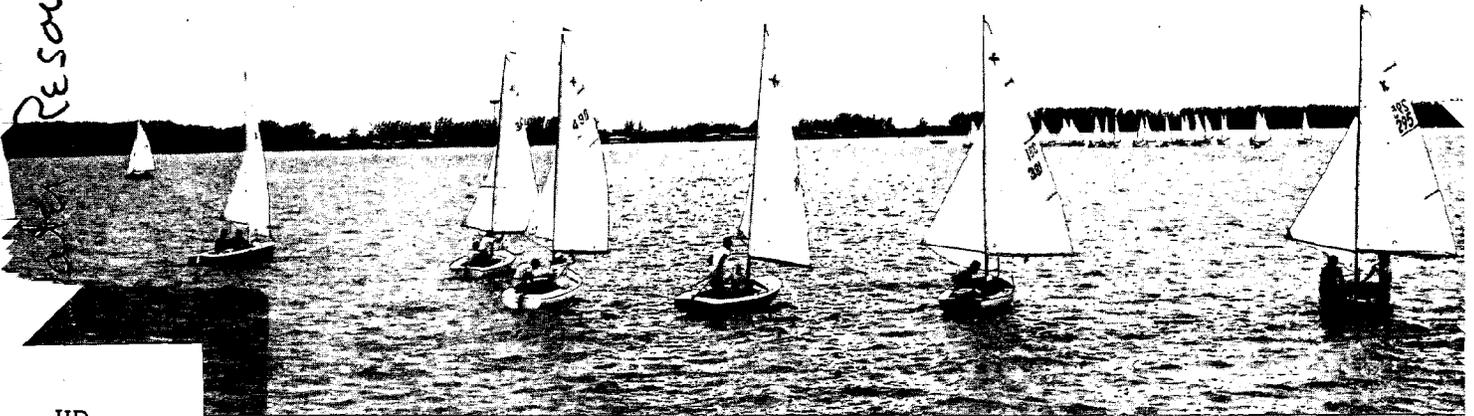
*Water Problems in the Context of County
Government Decision-Making*

By
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**WATER PROBLEMS IN THE CONTEXT OF COUNTY
GOVERNMENT DECISION-MAKING**

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Robert D. Thomas

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ABSTRACT

WATER PROBLEMS IN THE CONTEXT OF COUNTY GOVERNMENT DECISION-MAKING

In this report, Florida county commissioners' perceptions of selected water problems were compared with their perceptions of a typical agenda of selected non-water problems to assess where water problems "fit" with other problems in terms of their priorities. This purpose was accomplished: (1) through a comparison of Florida county commissioners' perceptions of the severity of water problems with other problems; (2) by examining the relationship between water problems and the effectiveness of policy measures to deal with water problems; and (3) by examining the effects of population, residential and industrial growth on commissioners' attitudes about what type of water problems are most severe (e.g., those which stimulate growth and development such as drainage or those which come as a result of growth and development such as sewage treatment).

Thomas, Robert D.

WATER PROBLEMS IN THE CONTEXT OF COUNTY GOVERNMENT DECISION-MAKING

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KEY WORDS: county commissioners' attitudes*/water
resource problems*/non-water problems*/decision-making*/
growth and development*/county government.

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1. INTRODUCTION

County governments stand as symbols of traditional local government. For a large segment of the American people, county governments establish a link with the country's rural heritage. As Grant and Nixon (1968:413) have argued:

Although many counties are sufficiently populated to be classed as urban or semi-urban, a majority of them are primarily rural or small-town in composition and retain patterns of government that were created by an agrarian society. Counties provide civic links between rural citizens and the outside world. County government continues to reflect no little acceptance of the idea of performance by laymen or amateurs rather than by experts or professionals, unless politicians be classed as professionals.

County governments are also the most territorially pervasive local governments in the United States. With the exception of Connecticut, Rhode Island, and Alaska, the authorities of county commissioners touch every geographic section of the country. However, the authorities of commissioners vary widely across geographic areas of the United States. In the New England states, for example, counties are especially weak because of localized power being in the hands of town councils. On the other hand, in the Southern states, historically counties have been and continue to be where the local policy action exists. Counties either share local power with cities, or have greater authorities than cities. For many issues, it is the county courthouse, to a larger extent than city hall, where local policy is largely affected in the South (Wager, 1950).

Regardless of the geographic dispersion of their influence, decisions of county commissioners directly or indirectly affect citizens throughout the country. County commissioners have an authoritative hand in almost every conceivable type of local governmental function: roads, public health facilities and services, libraries, law enforcement, solid waste management, schools and education,

recreation, planning, zoning, water supply and pollution control, and so on and on. Moreover, unlike cities and special districts, county functions include not only the delivery of local services but also the administration of state services such as elections, records, and courts.

The extent to which counties affect citizens has undergone change throughout the history of the United States. Before the Revolution, colonial counties had characteristics of English parishes and served both ecclesiastic and civil purposes. Immediately following the Revolution, counties served mainly as administrative arms of state governments. Their role in the capacity of state administrative subdivisions expanded their organization to include officers such as county treasurer, assessor, surveyor, sheriff, and prosecuting attorney. The collection of taxes, the subdivision and platting of land, and the enforcement of laws necessitated state mandated officials to provide these functions locally through the structure of county governments.

As urbanization began to increase after the Civil War and has continued more intensely since World War I, county services have been expanded. The most important of these have been general governmental services. Counties, particularly those with urban characteristics, began taking on corporate structures to provide functions demanded by local populations. Thus, the principal state functions that counties performed have been expanded with urbanization to include an additional role: counties as corporate entities (Duncombe, 1966: Chapter 2).

The evolution of the activities of counties points to two important interrelated factors which influence how county commissioners respond to public problems. The first is state. Counties have always operated as administrative subdivisions of the state. Much of what counties do is directly affected by what the state requires them to do. More so than cities, counties have both a historical and substantive link to state governments. Counties more than cities must look to the state for organizational, policy, and administrative guidance.

Urbanization is a second factor influencing how county commissioners respond to public problems, and it has expanded counties' activities. Urbanization brings more societal complexity, and citizens' demands are intensified by the side effects of urbanization such as increased population size and density; more industrialization; and more resource needs. Not only does urbanization bring additional demands for services, but it also creates more problems of intergovernmental relations. As a result, the traditional role of counties as state administrative arms has been expanded to counties operating as municipal governments, albeit in some cases with difficulty.

The effects of state and urbanization on counties take on different characteristics. In many cases, for example, county commissioners must perform dual functions in responding to public problems. They must respond not only to problems arising out of the activities of governing, but also those which arise from the demographic and socio-economic characteristics of their counties. Many of the problems which arise from the activities of governing come through their role as administrators of state services. Many of the demographic and socio-economic problems have only recently emerged, and require counties to operate as corporate entities.

The two factors of state and urbanization may also merge on some issues. For example, in growth management, counties are taking on new importance because they are the most optimal unit of local government below the state level with geographic expansiveness and political authority to deal with growth related issues. Thus, growth management is becoming important in many counties because of urbanization, and many states which have established state laws in growth management (e.g., land use) are relying on the counties to administer state programs.

1.1 The Study

Counties are thus an important unit of government in the American political system. This report attempts to put county governmental importance into perspective by

focusing on Florida county commissioners' activities on public problems. Specifically, the study compares Florida commissioners' perceptions of selected water problems with their perceptions of a typical agenda of selected non-water problems to assess where water problems "fit" with other problems in terms of their priorities. This purpose is accomplished through a comparison of county commissioners' perceptions of the severity of water problems with other problems which make up the typical agenda of non-water problems commissioners face (see Table 1);¹ by an examination of the relationship between water problems and the effectiveness of policy measures to deal with water problems (see Table 1); and by an examination of the effects of demographic and socio-economic characteristics of counties on commissioners' perceptions about what type of water problems are most severe (development problems such as water supply and drainage or the results of development such as water pollution and sewage treatment).

1.2 Methods of Data Collection and Analysis

The data for this study were derived mainly from a mail questionnaire survey of Florida county commissioners. Thirty-five percent of the Florida commissioners responded to the questionnaire. The technique employed was to send questionnaires to all Florida county commissioners. Thus, the interview responses examined herein do not constitute a random sample; however, it is contended that the responses obtained were representative of the universe of county commissioners in Florida. Responses were obtained from commissioners in 43 of Florida's 67 counties. The data set of the responses was compared with the available biographical information kept on record by the Association of Florida County Commissioners. Although the Association's records were not completely current and contained some omissions, it was felt that the sample was not unduly biased along any theoretically important dimensions.

The unit of analysis in this study is the attitudes of individual county commissioners. There is no attempt to aggregate the respondents in such a way to analyze different commissions across the state. This distinction is important since the concern is with commissioners' attitudes toward public problems, not county commissions' policy outputs. In other words, no conclusions are drawn as to the

TABLE 1
 SELECTED PROBLEMS AND POLICY MEASURES*

I. Selected Agenda Problems

- | | |
|--|---|
| 1. Roads | 9. Recreational Development |
| 2. Solid Waste Management | 10. Preserving Open Spaces |
| 3. Financing County Services | 11. Public Health Facilities |
| 4. Planning and Zoning | 12. Busing |
| 5. Welfare | 13. Education |
| 6. Housing | 14. Air Pollution |
| 7. Law Enforcement | 15. Administration of County Government |
| 8. Lack of Business and Industrial Development | 16. City Annexation of County Land |

II. Selected Water Problems

1. Water Supply for Domestic Purposes
2. Water Supply for Agriculture
3. Water Supply for Industry
4. Water Supply for Recreation
5. Water Supply for Fish/Wildlife
6. Water Supply for Salinity Control
7. Pollution from Domestic Sewage
8. Pollution from Industrial Waste
9. Pollution from Agricultural Waste
10. Flooding
11. Drainage
12. Beach Erosion
13. Salt Water Intrusion

III. Selected Policy Measures

1. Water Rationing
2. Flood Plain Zoning
3. Control Population Growth
4. Desalting
5. Land Use Planning
6. River Basin Planning
7. Regional Planning
8. Weather Modification (e.g., cloud seeding)
9. Interbasin Transfer of Water
10. Higher Water and Sewer Rates

* See Appendix A for the questions used to ascertain Florida county commissioners' attitudes about the selected problems and policy measures.

decision-making activities on public problems of collective county commissions (see Eulau, 1969 and Eulau and Prewitt, 1973). Although individual commissioner's attitudes are not aggregated into commission attitudes, it is contended that what an individual commissioner's attitude about a public problem is, is an important determinant of a policy perspective on that public problem (see, for example: Kelman, 1974 and Wilensky and Mayhew, 1973). In effect, if differences in individual commissioner's attitudes are found, then we might expect that these differences would have an effect on what commissioners in fact do with respect to those problems which confront them.

2. THE PROBLEM CONTEXT FOR COMMISSIONERS

County commissioners deal with an array of problems which cover a broad spectrum. Commissioners must deal directly or indirectly with problems that arise from general and specific functions. For example, in performing general governmental functions, county officials assess and collect taxes, administer elections, operate the lower courts, and record legal documents. Commissioners also have responsibilities in providing public utilities such as water supply, sewers, and solid waste; social and remedial programs such as police protection, welfare, and health care; promoting economic development through planning, zoning, and various types of residential, commercial, and industrial development; and regulating certain public and private activities such as pollution control.

County commissioners in many respects face a more diverse agenda of problems than do other local governmental officials. They must deal not only with problems that arise from the necessity to perform both general and specific functions; but may also have to deal with problems that arise from both urban and rural settings. In an urbanizing county, for example, commissioners have to perform traditional county functions (road construction and maintenance, tax collection, and collecting vital statistics and records) as well as confront demands for increased urban functions (pollution control, industrial development, welfare). These split demands complicate commissioners' resolution of problems. For example, they compound problems of inter-governmental relations. The more urbanized a county, it is generally more governmentally complex. Thus, some problems may affect counties and require commissioners' attention; yet these problems may not be exclusively within county jurisdiction (e.g., flood control). Or, some problems may arise for commissioners simply because there are a diversity of governments within county boundaries (e.g., city-county annexation and city annexation of unincorporated land). Split demands also compound finding available resources. In an urbanizing county, there are not only more diverse demands for scarce resources but the resources must be shared with other governments. Split demands either cause split loyalties among commissioners or cause them to develop dual

perspectives on problems, or both. Either way, the more diverse the agenda of problems, the more difficulty encountered in consensus building among commissioners.

The scope of problems do vary from county to county. While many problems are the same across counties, the scope of problems in rural counties are different from urban counties. The nature of what commissioners do will largely depend on the intensity of problems confronting them. Rural commissioners probably do not have to deal with people problems that arise from such things as transportation needs, health care, welfare, and public safety as intensely as do commissioners from urban counties. On the other hand, rural commissioners may be more inundated in natural resource problems that arise from the need for flood control, drainage, and water supply than their metropolitan counterparts.

The agenda of problems for officials of cities and special districts, on the other hand, is usually more uniform. While cities must perform a variety of functions, they are not as diverse as those in counties and they are usually more limited in scope. The budgetary roles of counties, their historic evolution and citizens constraints are among the reasons for counties having more diverse agendas than cities. Officials from special districts are even more specific in their functions than either city or county officials. Special districts are often local governments concerned with providing a single or limited number of functions. For example, under the rubric of water management, special purposed water management districts are responsible for flood protection, supervising drainage, controlling water uses, and providing recreational facilities. These inter-related water functions are limited in scope when compared with the broad array of county functions.

2.1 Frequency of Functions Performed by Counties

Most studies of counties discuss the agenda of problems confronting commissioners by enumerating the services performed by counties. Characteristic of these studies is the one conducted by the U. S. Advisory Commission on Intergovernmental Relations (ACIR) (1971:23).

ACIR surveyed 1,026 counties to assess the frequency of functions performed by these counties. As shown in Table 2, in this survey county officials mentioned a total of 58 problems which covered a broad spectrum.

ACIR revealed some interesting characteristics about problems confronting county governments in the United States, and it serves to place in perspective the analysis of Florida commissioners' perceptions of public problems. For purposes of the present study, ACIR's survey data have been refined into five (5) problem categories: social and remedial; services and utilities; promotion and development; regulatory; and, governmental and administrative. Also, percentage differences between the frequency of functions performed by urban and non-urban counties have been calculated.²

Generally speaking, as a perusal of Table 2 will show, urban counties perform more functions of all kinds than do non-urban counties. Although the basic principle applies that large governments perform more functions than smaller governments, patterns existed in the distribution of functions across counties. With the exception of social and remedial problems, urban counties more frequently than non-urban counties were found to perform governmental and administrative, service and utilities, promotion and development, and regulatory functions. As the percentage differences between urban and non-urban counties displayed in Table 2 show, this was found to be especially the case for governmental and administrative and regulatory functions.

For the governmental and administrative problem area, a 17 percent difference was found between urban and non-urban counties in the frequency of performing functions in this issue-area. This finding suggests that greater responsibilities are placed upon urban counties in handling state activities in such areas as election administration and recording legal documents. In turn, this has required more bureaucratization and has increased the need for performing administrative activities. For example, in the individual functions included under the governmental and administrative problem areas, very high percentage differences were found between urban and non-urban counties in data processing (36 percent difference),

central purchasing (26 percent difference), and personnel services (19 percent difference). Also, it would appear that urban counties must administer with greater frequency problems that arise from crime. Again, the data for individual functions in the governmental and administrative problem area show a higher percentage difference between urban and non-urban counties in having a public defender (23 percent difference) and prosecutor (17 percent difference).

For regulatory functions, as shown in Table 2, a 10.9 percent difference was found between urban and non-urban counties. More intense demands are placed on urban county commissioners to regulate private and public activities within their jurisdictional boundaries. In many instances, urban commissioners become involved in functions previously regulated by cities as problems associated with these functions cut across city boundaries and as they are intensified by urban growth (e.g., increased population size and density). Also, urban counties have become increasingly more involved in certain functions as state governments and the national government have become more involved in regulating these functions (i.e., county regulatory activities are in response to state and national laws). This would seem to explain the large differences found between urban and non-urban counties in the frequency of involvement in air pollution (27 percent difference) and water pollution (21 percent difference).

Several other interesting differences were found between urban and non-urban counties. First, under the social and remedial category, non-urban counties as shown in Table 2 were found to be involved more frequently in elementary and secondary education (-23 and -20 percent difference, respectively). This is an indication that in urban counties elementary and secondary education is handled by school districts independent from commissioners' control. In Florida, for example, school districts are organized on a county-wide basis. Only in the more urbanized areas are cities large enough (50,000 or more) to operate comprehensive college preparatory school programs as thought necessary by professional associations of school personnel. But, in higher education, urban counties were found to be more involved than non-urban counties (junior college 13.0 percent difference and 4-year colleges 6.0 percent difference). Demands for education beyond elementary and secondary schools are more intense in urban counties, especially for junior colleges which provide vocational and technical training.

TABLE 2

FREQUENCY OF FUNCTIONS PERFORMED BY 1,026 COUNTIES WITH
 PERCENTAGE DIFFERENCES BETWEEN URBAN AND NON-URBAN
 COUNTIES BY INDIVIDUAL FUNCTIONS IN ISSUE-AREAS

	All Counties	(a) Urban	(b) Non-Urban	(a-b) Difference %
<u>Regulatory</u>	18	28	17	+11
1. Animal Control	33	51	30	+21
2. Code Enforcement	21	42	18	+24
3. Fish and Game	15	8	16	- 8
4. Air Pollution	14	37	10	+27
5. Water Pollution	12	30	9	+21
6. Power Supply	13	2	15	-13
7. Livestock Inspection	20	23	19	+ 4
<u>Governmental & Administrative</u>	48	63	46	+17
8. Tax Assessor & Collection	83	83	83	0
9. Coroner's Office	80	87	78	+ 9
10. Courts	76	87	74	+13
11. Prosecution	66	80	63	+17
12. Veterans' Affairs	49	57	47	+10
13. Personnel Service	19	35	16	+19
14. Central Purchasing	18	40	14	+26
15. Data Processing	13	43	7	+36
16. Public Defender	31	51	28	+23
<u>Social and Remedial</u>	52	52	52	0
17. Jails and Detention Homes	85	97	83	+14
18. General Assistance - Public Welfare	79	76	79	- 3
19. Public Health	75	80	74	+ 6
20. Medical Assistance	68	70	67	+ 3
21. Mental Health	60	60	58	+ 2
22. Elementary Schools	57	37	60	-23
23. Secondary Schools	54	36	56	-20
24. Crippled Children	49	52	49	+ 3
25. Special Education Program	40	38	41	- 3
26. Junior Colleges	16	27	14	+13
27. 4-Year Colleges	3	9	3	+ 6
28. Hospitals	39	41	39	+ 2

TABLE 2 (CONT'D)

	All Counties	(a) Urban	(b) Non-Urban	(a-b) % Difference
<u>Promotion and Development</u>	25	32	23	+ 9
29. Roads and Highways	76	78	76	+ 2
30. Planning	52	76	48	+28
31. Zoning	43	55	41	+14
32. Parks and Recreation	38	55	35	+20
33. Subdivision Control	30	51	26	+25
34. Industrial Development	17	21	16	+ 5
35. Public Housing	13	19	12	+ 7
36. Urban Renewal	5	9	5	+ 4
37. Mass Transit	1	5	1	+ 4
38. Cultural Affairs	4	7	4	+ 3
39. Parking	9	11	9	+ 2
40. Museums	13	17	12	+ 5
41. Auditoriums	17	17	16	+ 1
<u>Service and Utilities</u>	35	36	35	+ 1
42. Police Protection	82	78	82	- 4
43. Agricultural Extension Services	75	75	74	+ 1
44. Probation and Parole Services	59	79	56	+23
45. Libraries	56	57	56	+ 1
46. Fire Protection	44	31	46	-15
47. Ambulance Services	38	23	40	-17
48. Airport	32	24	34	-10
49. Solid Waste	29	37	28	+ 9
50. Sewers and Sewage Disposal	26	33	24	+ 9
51. Refuse and Garbage	23	21	23	- 2
52. Flood and Drainage	23	34	21	+13
53. Cemeteries	21	15	22	- 7
54. Water Supply	20	21	20	+ 1
55. Ports and Harbors	4	9	3	+ 6
56. Irrigation	6	3	7	- 4
57. Soil Conservation	41	39	41	- 3
58. Mosquito Abatement	16	37	13	+24

Source: Data for this table were derived from U.S. Advisory Commission on Intergovernmental Relations, Profile of County Governments, (Washington, D. C., 1971), p. 23.

Second, while promotion and development occurs in both urban and non-urban counties with similar frequency, a greater frequency of planning (28 percent difference), subdivision control (25 percent difference), parks and recreation (20 percent difference) and zoning (14 percent difference) were found to occur in urban counties. This would seem to be stimulated by such factors as increased state and national requirements, more professionalization, and increased demands brought on by increases in population size and density.

Third, the frequency of service and utilities functions, like social and remedial, generally were not found to be influenced by urbanization. There was overall only a 1.5 percent difference between urban and non-urban counties. These data do indicate, however, that where functions have not gravitated to cities, then counties provide them. For example, non-urban counties were found to perform more frequently functions of fire protection (-15 percent difference), ambulance services (-17 percent difference), refuse and garbage (-2 percent difference), cemeteries (-7 percent difference), and police protection (-4 percent difference). In urban counties where there is more governmental complexity cities perform these functions. In addition, cities may provide these functions on a contract basis for counties. That is, a city might provide police protection and for an agreed upon price a county buys this service from the city, or vice versa. However, non-urban counties have less governmental complexity and therefore must perform these functions where cities are either unavailable or unable to do so.

2.2 Severity of Water Problems Versus Sixteen Non-Water Problems

An examination of the agenda of problems confronting county commissioners must go farther than enumerating the frequency of functions performed. Therefore, in this report a framework for looking at problems through the perceptual lens of county commissioners is presented. A selected list of problems is characterized in terms of how commissioners perceive the severity of these problems. The questions of concern are: What problems do county commissioners perceive as the most pressing? How do water problems compare with other problems? To assess

the problem context of county commissioners and ascertain where water problems "fit" within an agenda of non-water problems, commissioners' perceptions of the severity of a selected list of public problems is examined.

A major assumption directing this analysis is that the context of problems confronting county commissioners is influenced in large measure by the commissioners' cognitive assessment of which problems are severe and which are not severe. As a basic theoretical premise, perception of problem severity is an indicator not only of substantive concerns of commissioners (e.g., inadequate roads, overcrowded schools, pollution, etc.) but also of political considerations (e.g., interest group pressures, public opinion, re-election, etc.). A commissioner, for example, may feel two problems are equally severe from the standpoint of substantive concerns, but one of the problems may be elevated to a higher priority from the standpoint of political considerations. Severity is, therefore, of overriding importance in influencing commissioners' responses to problems.

As shown in Table 3, Florida county commissioners ranked water problems less severe overall than an agenda of 16 selected non-water problems. The data in Table 1 show, for example, that only 15.4 percent (or 2 of the 13 selected water problems examined) were ranked in the high severity category as compared to 75.0 percent (or 12 of the 16) selected non-water problems.

Almost all of the problems in the high severity category for both the 16 selected non-water problems and the water problems are continuous agenda items for commissioners or for other county officials which they must perform either as mandated by the state or as corporate entities. For example, counties have historically been involved in road construction and maintenance, financing, and providing health facilities and services. The impact of urbanization has necessitated commissioners becoming involved in providing more services that have arisen from citizens' needs and demands, such as solid waste management, planning and zoning, housing, recreational development, lack of business and industrial development, and preserving open spaces. It appears from these data that commissioners are aware of not only their traditional functions and rank them as important but also their newer corporate functions.

TABLE 3

RANKING OF PROBLEMS BY SEVERITY*

<u>Agenda of Problems</u>	<u>\bar{X} Ranking</u>		<u>Water Problems</u>		<u>Other Problems</u>	
			<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>
Roads	3.351					
Solid Waste Management	3.339					
Financing County Services	3.144					
Planning/Zoning	3.090					
Welfare	3.028					
*Water Pollution from Domestic Sewage	3.000					
Housing	2.982					
*Drainage	2.892					
Law Enforcement	2.860	High Severity	15.4	(2)	75.0	(12)
Lack of Business & Industrial Development	2.805					
Recreational Development	2.781	Low Severity	84.6	(11)	25.0	(4)
Preserving Open Spaces	2.770					
Public Health Facilities	2.759					
Busing	2.714	Total	100.0	(13)	100.0	(16)
Education	2.664					
*Water Supply for Domestic Purposes	2.598					
*Beach Erosion	2.584					
Air Pollution	2.541					
*Water Pollution from Industry	2.540					
*Water Pollution from Agriculture	2.539					
*Flooding	2.504					
*Water Supply for Agriculture	2.500					
Administration of County Government	2.482					
*Water Supply for Fish and Wildlife	2.360					
*Water Supply for Industry	2.351					
*Water Pollution from Salt Water Intrusion	2.304					
*Water Supply for Recreation	2.300					
*Water Supply for Salinity Control	2.238					
Annexation	2.071					
TOTAL	78.091					
GRAND \bar{X}	2.693					

*Mean Rankings for Problem Severity:
 1.00=no problem; 2.00=not at all severe; 3.00=not very severe; and 4.00=severe.

* Water Problems

Although water problems are generally seen as less severe, water pollution from domestic sewage and drainage were found to be ranked in the high severity category. It is somewhat paradoxical that commissioners see both of these problems in the high severity category. Drainage has been a major stimulus to growth and development in Florida in that drainage laws of Florida have been used not only to make land agriculturally productive (their original intent) but also to make land available for subdivision and residential development. In other words, drainage has been a major stimulant for growth and development in the high growth areas of the state. By contrast, water pollution from domestic sewage is the result of growth and development. Domestic sewage is generally considered to be the most severe water problem confronting the state. Commissioners see both the stimulus for growth and development (e.g., drainage) and the result of growth and development (e.g., domestic sewage) as severe. (This seemingly paradoxical attitude is examined in more detail below in Chapter 3.)

2.3 Propensity of Commissioners to Deal with Water Problems

Although water problems are not perceived to be as severe as other problems, an important question to ask is: When water problems are perceived to increase in severity, do commissioners perceive they should take action on them in the same way as they do on non-water problems when non-water problems are perceived to increase in severity? To ascertain whether water problems are crowded off the agenda of problems for county commissioners when commissioners deal with water problems, the relationship between the severity of water problems and non-water problems has been examined in a regression analysis. The data in Figure 1 show a positive relationship between water problem severity and the severity of other problems ($r = .608$, $r^2 = .369$, $p < .01$). More important is the positive slope of .780, which shows that commissioners perceive water problem severity increasing at the same rate as the severity of other problems. In essence, commissioners would appear to have a propensity to deal with water problems in the same way as non-water problems as their severity is perceived to increase and thus their priority.

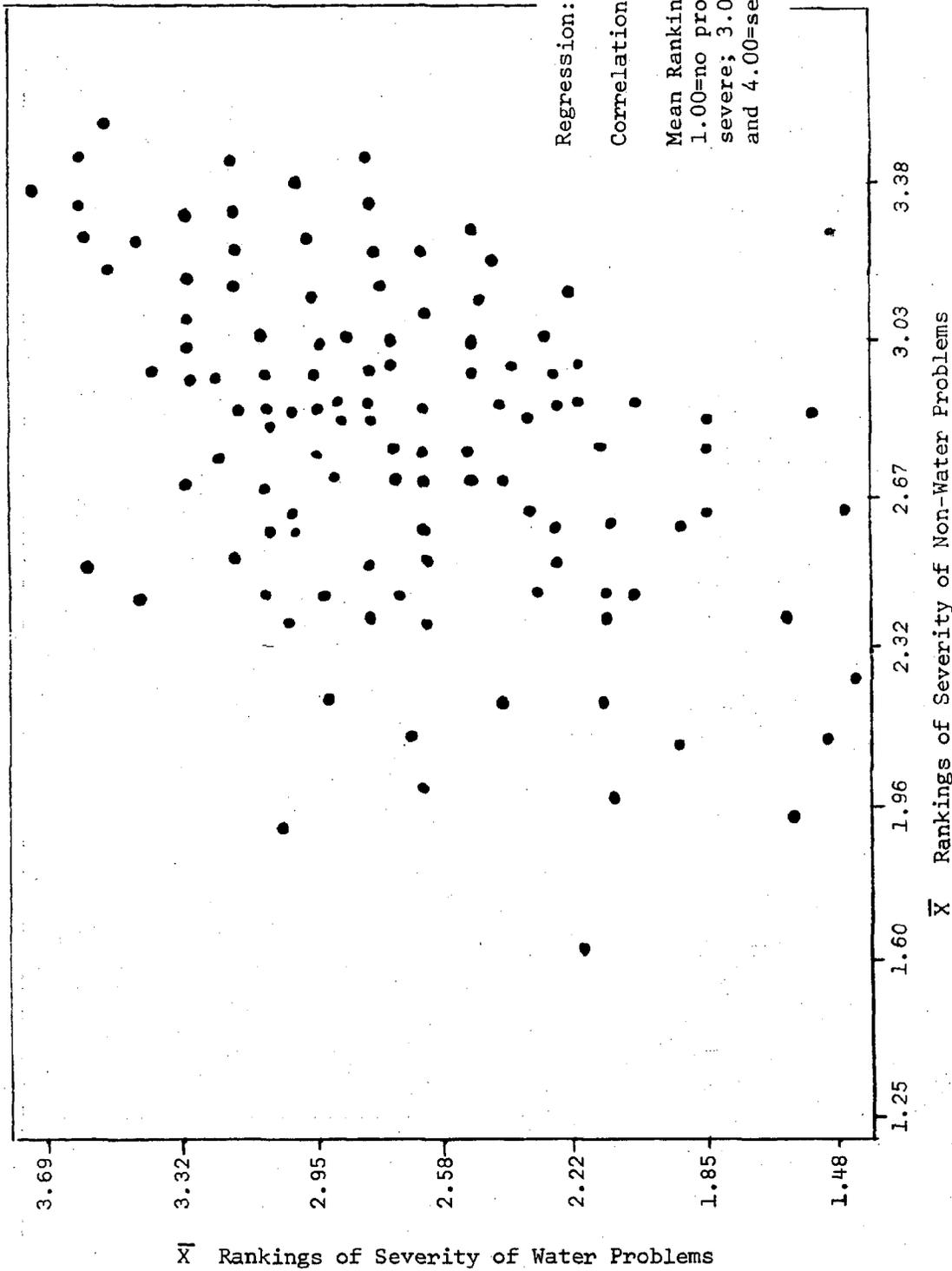


FIGURE 1 - RELATIONSHIP BETWEEN THE SEVERITY OF NON-WATER PROBLEMS AND THE SEVERITY OF WATER PROBLEMS

2.4 Effectiveness of Policy Measures in Dealing with Water Problems

Another aspect of commissioners activities on water problems is their perceptions of the effectiveness of policy measures to deal with water problems. Table 4 shows how the Florida county commissioners ranked the effectiveness of 10 selected policy measures. The data in Table 4 indicate the commissioners' perceptions of the importance of various types of planning in solving water problems. For example, the top three ranked policy measures were land use planning, regional planning, and river basin planning. It would appear that Florida county commissioners are aware of the need to approach water problems on more than a local basis; that is, the Florida commissioners seem to understand that water problems cut across artificially constructed local political boundaries (including county boundaries); therefore, to deal effectively with water problems, regional and/or river basin approaches should be taken along with blending water problem solutions to land use patterns.

How do the commissioners' perceptions of water problem severity relate to their perceptions of the effectiveness of policy measures to deal with water problems? This question was examined by summing commissioners' responses to the severity of the 13 selected water problems and, then, correlating these responses with the summated responses of the commissioners to the perceived effectiveness of the 10 policy measures.

By looking at the relationship between severity and effectiveness in a regression equation, it is possible to ascertain whether or not commissioners have a propensity to take policy action on water problems. For example, if a positive relationship is found between water problem severity and the effectiveness of policy measures to deal with water problems, then it may be concluded that commissioners see these measures as leading to positive results and thus would have a propensity to support them. On the other hand, if a negative relationship is found a paradoxical situation is occurring. Commissioners who perceive water problems as less severe see more value in available action, while commissioners who perceive water problems as more severe see little value in available action. The implication of this result is that action to improve water problems, from the perspective of commissioners, is not likely to take place.

TABLE 4: RANKING OF POLICY MEASURES BY EFFECTIVENESS*

<u>Policy Measure</u>	<u>\bar{X} Ranking</u>
Land Use Planning	3.437
Regional Planning	3.267
River Basin Planning	3.175
Flood Plain Zoning	2.794
Control Population Growth	2.686
Interbasin Transfer of Water	2.449
Water Rationing	2.388
Desalting	2.271
Higher Water and Sewer Rates	2.143
Weather Modification	2.051

*Mean Rankings for Effectiveness of Policy Measures:
 1.00=not at all effective; 2.00=not very effective;
 3.00=fairly effective; and 4.00=very effective.

As the data in Figure 2 show, there is a positive relationship between water problem severity and the effectiveness of water policy measures ($r = .627$, $r^2 = .393$, $p < .01$). The steep slope of the regression line (.849) indicates that commissioners do perceive severity and effectiveness as related, and related in such a way to indicate that, as water problem severity increases, policy measures to deal with water problems will bring about positive results.

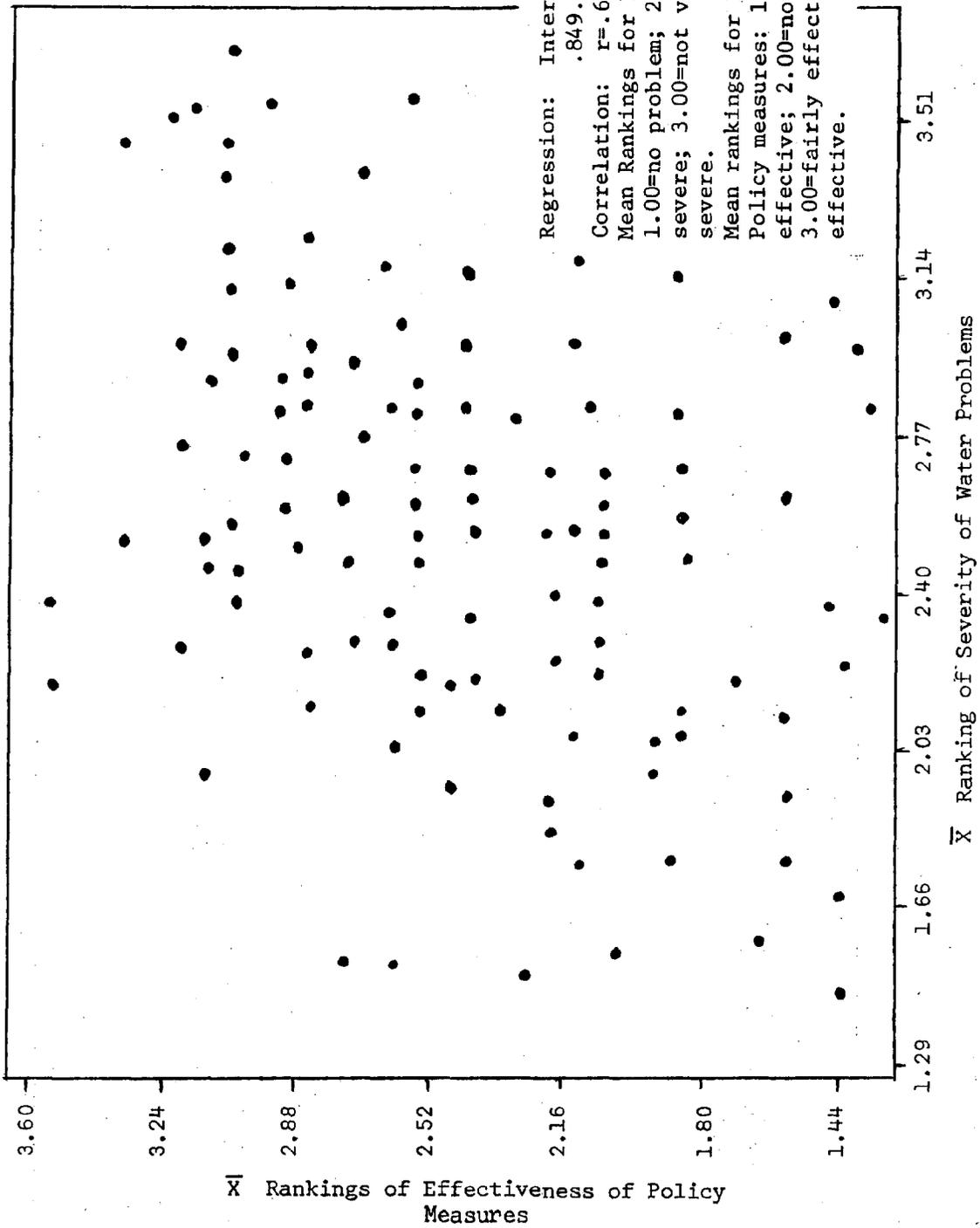


FIGURE 2 - RELATIONSHIP BETWEEN SEVERITY OF WATER PROBLEMS AND EFFECTIVENESS OF POLICY MEASURES TO DEAL WITH WATER PROBLEMS

3. TYPE OF WATER PROBLEMS PERCEIVED TO BE MOST SEVERE

It was indicated above (p.16) that commissioners' attitudes about the severity of selected problems revealed a paradoxical occurrence insofar as water problems located in the high severity category were concerned. Both water pollution from domestic sewage and drainage were found to be ranked in the high severity category. This is somewhat puzzling since water pollution from domestic sewage is the result of growth and development and drainage stimulates growth and development. Therefore, the question arises: Which commissioners hold that water problems which are the result of growth and development are most severe and which commissioners hold that water problems which stimulate growth and development are most severe?

To shed some light on this question as well as to develop a more adequate profile of Florida commissioners' attitudes about water problems, the analysis in this section examines Florida commissioners' attitudes about which type of water problems are thought to be most severe: those which stimulate growth and development or those which are the result of growth and development.

We can conceptually think of commissioners' concern with water problems evolving in the following stages:

NO WATER PROBLEMS ARE SEEN AS SEVERE.

DEVELOPMENT PROBLEMS ARE SEEN AS MOST SEVERE.

UNDECIDED ABOUT WHICH TYPE OF WATER PROBLEMS ARE MOST SEVERE.

ALL TYPES OF WATER PROBLEMS ARE SEEN AS SEVERE.

WATER PROBLEMS WHICH COME AS A RESULT OF GROWTH AND DEVELOPMENT ARE SEEN AS MOST SEVERE.

TABLE 5

SCALE TYPES FOR FLORIDA COMMISSIONERS' PERCEPTIONS OF THE SEVERITY OF WATER PROBLEMS

Water Supply	Item			Water Pollution	Frequency	Scale Type
	Drainage	Treatment	Sewer			
X	X	X	X	X	10	ALL TYPES OF WATER PROBLEMS ARE SEEN AS SEVERE
0	X	X	X	X	7	WATER PROBLEMS WHICH COME AS A RESULT OF GROWTH AND DEVELOPMENT SEEN AS MOST SEVERE
0	0	X	X	X	15	
0	0	0	X	X	3	
0	0	X	0	0	12	
0	X	X	0	0	15	UNDECIDED ABOUT WHICH TYPE OF WATER PROBLEMS ARE MOST SEVERE
X	X	X	0	0	4	DEVELOPMENT PROBLEMS ARE SEEN AS MOST SEVERE
X	X	0	0	0	1	
X	0	0	0	0	1	
0	X	0	0	0	9	
0	0	0	0	0	23	NO WATER PROBLEMS ARE SEEN AS SEVERE

Initially, if a water supply is readily available and a community is sparsely populated, then water problems do not concern commissioners; that is, water problems become secondary to more immediate problems of growth and development such as stimulating subdivision, residential, commercial, and industrial growth and development. But, if water resources (either the overabundance or scarcity) hinder growth and development, then we can reason that commissioners will enter a second stage in their concern about water problems. They will then see water problems which can be used either to stimulate or hinder growth and development as the most severe ones confronting their county. These would include problems such as drainage and flood control. A third stage is when the commissioner is undecided about which type of water problems are most severe. His county may be experiencing rapid growth and development, and while he sees the necessity of continued growth and development, he also is concurrently feeling its effects; therefore, he is undecided about which type of water problems are most severe. If the push and shove of both types of water problems intensify, then the commissioner's attitudes about water problems will enter a fourth stage. He will see all types of water problems as severe. Finally, if the effects of growth and development override the necessity of stimulating growth and development, it can be reasoned that a commissioner will then see these problems which come as a result of growth and development as most severe.

To analyze Florida county commissioners' attitudes about which type of water problems were the most severe, the respondents' attitudes about development issues (e.g., water supply and drainage) and issues which are the result of development (e.g., sewage treatment and water pollution) were scaled. Proximity or developmental scaling was used.³ In scaling Florida commissioners' attitudes about water problem severity, commissioners were located in five categories which corresponded to the developmental states discussed above.⁴ The five scale types are shown in Table 5.

To ascertain how growth characteristics of a county affect commissioners' attitudes about water problem severity, three growth indicators -- population, residential, and industrial -- were examined. To measure the influence of population growth on commissioners' attitudes about water problem severity, the effects of population size (1970), population density (1970), and population change (1960-1970) were examined. To measure the influence of residential growth on commissioners' attitudes, the effects of total housing (1970) were examined.

Finally, to measure the influence of industrial growth on commissioners' attitudes, the effects of manufacturing plant starts and expansions between 1965-1969 were examined.

From the data displayed in Tables 6, 7, and 8, a profile of Florida county commissioners' attitudes about water problem severity can be constructed. As the data in Table 6 show, commissioners representing less populated, less densely settled, and less rapidly growing counties hold that water problems generally associated with growth and development are more severe. Moreover, as the data in Tables 7 and 8 show, these commissioners' counties do not have large residential areas, nor are their counties heavily industrialized. While these are the predominant characteristics, the data displayed in Tables 6, 7, and 8 suggest that these commissioners are somewhat aware of water problems which come as the result of growth. For example, while the development of attitudes toward water problem severity generally ran in the expected direction (i.e., from no problems seen as severe to the results seen as most severe) according to population, residential, and industrial growth characteristics, commissioners from the smaller growth counties did indicate a degree of awareness of the severity of water problems which are the result of growth and development.

By contrast, as we might expect, Tables 6, 7, and 8 show that commissioners representing larger (more populated), more densely settled, and more rapidly growing counties hold that water problems associated with the results of growth and development are more severe. Also, these commissioners represent counties which have more residential and industrial development. Thus, we can conclude that the evolution of commissioners' attitudes toward water problems associated with different types of growth and development are influenced by the growth characteristics of their counties.

What does this mean about where water problems "fit" within the context of county government decision-making? From the above analysis, it is apparent that those commissioners whose counties are in low growth areas view water problems as necessary to stimulate growth and development. Thus, it would appear that for these commissioners, water problems are only priority items

insofar as they adversely or positively affect the growth and development of the county. However, the above analysis indicates that when a commissioner's county begins experiencing the effects of growth (e.g., pollution, sewerage costs and associated problems), their attitudes toward water problem severity indeed go through an evolutionary process. Their attitudes change toward the type of water problems seen as most severe. In effect, their attitudes about the priority of water problems on the agenda of county government change. They are more aware of those water problems associated with the results of growth and development.

TABLE 6

RELATIONSHIP BETWEEN DEMOGRAPHIC GROWTH CHARACTERISTICS OF FLORIDA COUNTIES AND COMMISSIONERS' ATTITUDES ABOUT MOST SEVERE TYPE OF WATER PROBLEM

	Population Size (1970)		Population Density (1970)		Population Change 1960-1970	
	<25,000 Small	>25,000 Large	<50 Low	>50 High	Population 0-24%	Lost Population 25% above
NO WATER PROBLEMS ARE SEEN AS SEVERE	46.9 (15)	11.8 (8)	38.6 (17)	10.7 (6)	57.1 (4)	30.0 (12) 13.2 (7)
DEVELOPMENT PROBLEMS SEEN AS MOST SEVERE	12.5 (4)	16.2 (11)	13.6 (6)	16.1 (9)	0.0 (0)	20.0 (8) 13.2 (7)
UNDECIDED ABOUT WHICH TYPE OF WATER PROBLEMS ARE MOST SEVERE	18.8 (6)	13.2 (9)	15.9 (7)	14.3 (8)	0.0 (0)	17.5 (7) 15.1 (8)
ALL TYPES OF WATER PROBLEMS ARE SEEN AS SEVERE	0.0 (0)	14.7 (10)	4.5 (2)	14.3 (8)	0.0 (0)	2.5 (1) 17.0 (9)
WATER PROBLEMS WHICH COME AS A RESULT OF GROWTH & DEVELOPMENT SEEN AS MOST SEVERE	21.9 (7)	44.1 (30)	27.3 (12)	44.6 (25)	42.9 (3)	30.0 (12) 41.5 (22)
	100.1 (32)	100.0 (68)	99.9 (44)	100.0 (56)	100.0 (7)	100.0 (40) 100.0 (53)

TABLE 7

RELATIONSHIP BETWEEN RESIDENTIAL GROWTH OF FLORIDA
COUNTIES AND COMMISSIONERS' ATTITUDES ABOUT MOST
SEVERE TYPE OF WATER PROBLEM

	<u>Housing Units (1970)</u>	
	<15,000	≥15,000
NO WATER PROBLEMS ARE SEEN AS SEVERE	34.0 (18)	10.6 (5)
DEVELOPMENT PROBLEMS ARE SEEN AS MOST SEVERE	18.9 (10)	10.6 (5)
UNDECIDED ABOUT WHICH TYPE OF WATER PROBLEMS ARE MOST SEVERE	13.2 (7)	17.0 (8)
ALL TYPES OF WATER PRO- BLEMS ARE SEEN AS SEVERE	3.8 (2)	17.0 (8)
WATER PROBLEMS WHICH COME AS A RESULT OF GROWTH & DEVELOPMENT ARE SEEN AS MOST SEVERE	30.2 (16)	44.7 (21)
	100.1 (53)	99.9 (47)

TABLE 8

RELATIONSHIP BETWEEN INDUSTRIAL GROWTH OF FLORIDA COUNTIES AND COMMISSIONERS' ATTITUDES ABOUT MOST SEVERE TYPE OF WATER PROBLEM

	Manufacturing Plant Starts and Expansion (1965-1969)	
	<20	≥20
NO WATER PROBLEMS ARE SEEN AS SEVERE	29.0 (18)	13.2 (15)
DEVELOPMENT PROBLEMS ARE SEEN AS MOST SEVERE	17.7 (11)	10.5 (4)
UNDECIDED ABOUT WHICH TYPE OF WATER PROBLEMS ARE MOST SEVERE	16.1 (10)	13.2 (5)
ALL TYPES OF WATER PROBLEMS ARE SEEN AS SEVERE	4.8 (3)	18.4 (7)
WATER PROBLEMS WHICH COME AS A RESULT OF GROWTH & DEVELOPMENT ARE SEEN AS MOST SEVERE	32.3 (20)	44.7 (17)
	99.9 (62)	100.0 (38)

4. SUMMARY

The preceding analysis may be summarized as follows:

1. As indicated by Florida county commissioners' perceptions of a selected list of public problems, water problems are generally not considered to be as important as non-water problems which commissioners face. Water pollution problems and drainage were found to be considered by Florida county commissioners to be as severe as non-water problems. Water pollution and drainage represent two extreme of water problems. On the one hand, drainage is thought to be a stimulant of growth and development. On the other hand, water pollution comes as a result of growth and development. When this seemingly paradoxical view of water problem severity was examined in a proximity scale analysis, it was found that Florida commissioners' attitudes followed a development sequence: from an attitude that no water problems were severe to an attitude that pollution problems were more severe. The evolution of commissioners' attitudes was found to be effected by the amount of population, residential, and industrial growth within a commissioner's county.

2. Although water problems are not of central importance to Florida county commissioners, the above analysis did show that Florida commissioners exhibit a propensity to deal with water problems in the same fashion as other problems when water problems increase in severity. In other words, commissioners did indicate that they see the necessity of positive action being taken on water problems as they increase in severity.

3. Moreover, the Florida commissioners held that policy measures (particularly various types of planning) could have positive effects on water problems.

NOTES

1. In selecting the water and non-water problems, the intent was to look at a broad section of problems which, although not touching every conceivable problem that confront county commissioners, broadly touched on most of the typical water and non-water problems of county governments and local governments generally.

2. An urban county is defined in ACIR's survey as one with a population of 100,000 and above. A non-urban county is defined as one with a population below 100,000.

3. Proximity or, as it is sometimes referred to, developmental scaling, unlike the more commonly used Guttman's scaling, allows for the ordering of commissioners' attitudinal responses on type of water problems in sequential stages. This ordering of sequential stages does not imply that one stage causes another. As Leik and Matthews (1968:62-63) argue:

Inherent in some uses of a developmental conceptualization is an assumption that a particular sequence of stages is a functional necessity. In its most stringent interpretation, this usage would imply that stage k cannot occur unless stage j has occurred, assuming that j precedes k in the sequence. A less stringent functional interpretation is that stage j should precede stage k if certain favorable outcomes are to be realized, although it is possible but not very probable for k to occur without j having been present. Regardless of the question of a functional ordering, it may be that a sequence is hypothesized as the norm, implying that it is modal in the statistical sense. As with the less stringent functional form, this usage would imply that stage k would more frequently follow stage j than the reverse ordering.

4. Six items, which represent both ends of the growth and development continuum, were used in the scale analysis. These six items were: water supply, drainage, flooding, droughts, sewage treatment, and water pollution. Using the appropriate method for item deletion (see Leik and Matthews: 1968), four items were ordered in the final scale. The coefficient of scalability for the scale presented in Table 5 is .675 ($p < .01$). (The accepted statistical cut-off for scalability is .60.) A coefficient of reproducibility may also be calculated for a proximity scale. The coefficient of reproducibility for the scale presented in Table 5 is .910. (The accepted statistical cut-off for reproducibility is .90.)

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APPENDIX A: QUESTIONNAIRE

1. Here is a list of problems that your county may now face. Would you please indicate to what degree these are now problems for your county? (If one does not apply, check "not applicable.")

	Not Severe	Very Severe	At All Severe	Not Applicable
Financing County Services				
Lack of Business & Industrial Development				
Planning & Zoning				
Welfare				
City Annexation of County Land				
Housing				
Roads				
Public Health Facilities				
Law Enforcement				
Solid Waste Management				
Air Pollution				
Recreational Development				
Administration of County Government				
Education				
Busing				
Preserving Open Spaces				

2. Here is a list of water problems your county may now face. Would you please indicate to what degree these are not problems for your county? (If one does not apply to your county, check "not applicable.")

	Not Severe	Very Severe	At All Severe	Not Applicable
Water Supply for Agriculture				
Water Supply for Domestic Purposes				
Water Supply for Industry				
Water Supply for Recreation				
Water Supply for Fish & Wildlife				
Water Supply for Salinity Control				
Pollution from Domestic Sewage				
Pollution from Industrial Waste				
Pollution from Agricultural Waste				
Flooding				
Drainage				
Beach Erosion				
Salt Water Intrusion				

3. How effective do you think each of the following measures might be in dealing with any water use problems your county might face?

	Very Effective	Fairly Effective	Not Very Effective	Not at All Effective
Water Rationing				
Flood Plain Zoning				
Control Population Growth				
Desalting				
Land Use Planning				
River Basin Planning				
Regional Planning				
Weather Modification (e.g., Cloud Seeding)				
Interbasin Transfer of Water				
Higher Water & Sewer Rates				

