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Stakeholder Participation in Watershed Management

An Evaluation of the Jordan Lake Stakeholder Project

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Introduction

The Jordan Lake Stakeholder Project (JLSP) was convened by the NC Department of Water Quality (DWQ) to gather public input in response to high levels of nutrients found in Jordan Lake, a reservoir in the central piedmont of North Carolina. The DWQ is a frequent convener of such time- and resource-intensive projects, yet lacks methods for evaluating their successes and benefits. By assessing public involvement in terms of substantive and procedural factors and practical outcomes, I evaluated the success of the JLSP. This evaluation template can be used by environmental regulators to guide future collaborative processes in watershed management.

Background

Jordan Lake is a nutrient-rich reservoir located in the upper Cape Fear River Basin in central North Carolina. The lake has been plagued by high nutrient levels since its impoundment in 1983, when the state designated Jordan Lake as a Nutrient Sensitive Water (North Carolina Division of Water Quality 2007).

In 2003, the North Carolina Division of Water Quality convened the Jordan Lake Stakeholder Project to develop a Total Maximum Daily Load (TMDL) and nutrient management strategy for the watershed. The DWQ believed that by convening this group to develop the TMDL and nutrient management strategy they would gain much-needed support for possibly unpopular regulatory actions. The Triangle J Council of Governments (http://www.tjcog.dst.nc.us/) and the Piedmont Triad Council of Governments (http://www.ptcog.org/) facilitated the process, which included 222 individuals representing 113 organizations from the watershed (Triangle J Council of Governments 2005). Twenty-one meetings were conducted between May 2003 and December 2004, when the official project concluded (Triangle J Council of Governments 2005).

At the conclusion of the official stakeholder project, a TMDL for each subwatershed had been developed. However, the group had not been able to develop a nutrient strategy about which all participants could agree and instead provided recommendations about the content of the nutrient strategy on which the majority of the stakeholders were in agreement (Triangle J Council of Governments 2005).

Because the stakeholders were not able to develop a comprehensive nutrient management strategy, informal meetings with the DWQ and stakeholders continued through 2007. In June 2007, the DWQ put forth a proposed set of rules. After a lengthy public comment period, the Environmental Management Commission (EMC) approved the rules on May 8, 2008. The EMC is comprised of environmental professionals appointed by the Governor and is responsible for adopting rules for the protection, preservation and enhancement of the State's air and water resources (North Carolina Environmental Management Commission 2008). The rules will now be heard by the Rules Review Commission of the North Carolina General Assembly. If the rules receive a favorable report by the Rules Review Commission, they will then be voted on by the

NC General Assembly. Voting on the Jordan Reservoir Nutrient Strategy by the NC General Assembly is expected during the 2009 Session.

The JLSP is a typical example of the DWQ's use of stakeholder processes to engage the public during the initial stages of the regulatory process. The DWQ has been an avid proponent of public involvement, convening close to twenty public participation projects in their regulation of water quality issues across the state (Maguire and Steelman 2006). The JLSP was one of the largest public participation projects ever convened by the DWQ, resulting in significant costs in terms of both time and resources for the agency and the participants.

Over the past twenty years, the Environmental Protection Agency, as well as state environmental agencies, have substantially increased their use of public participation in the development of environmental regulations (Irvin and Stansbury 2004, Conley and Moote 2003). The increased use of collaborative processes has been especially evident in the field of watershed management. Large areas spanning multiple government jurisdictions, numerous affected parties, and a wide range of pollutants and sources are just a few of the issues that are addressed by collaborative watershed management.

Environmental regulators have been quick to identify and attempt to reap the potential benefits of public involvement such as reducing conflict among stakeholders, improving community relations with industry and government, developing consensus-based regulations, and reducing litigation (Conley and Moote 2003, Irvin and Stansbury 2004). However, although participatory processes offer many benefits, the costs of these processes cannot be ignored. Public participation projects can be monetarily costly, time-consuming, and ineffective when not implemented in appropriate situations or with appropriate design and execution (Korfmacher 2001). In addition, many researchers question whether these processes truly include stakeholders representative of the general population since many times these processes are dominated by special interest and industry representatives (Irvin and Stansbury 2004, Sabatier, et al. 2005).

Despite their increased use and possible limitations, evaluation of collaborative processes concerning environmental issues has been limited (Chess 2000). There is an overall lack of empirical studies documenting the effectiveness and results of collaborative processes (Rhoads, et al. 1999). This lack of evaluation is damaging to the continued use of collaborative processes because there is little evidence to support the use of collaborative processes by regulatory agencies (Chess 2000). Conveners and participants need to know whether these processes really do lead to improved resource management and whether the time and effort invested in collaboration by the participants is likely to produce tangible results (Conley and Moote 2003, Leach, et al. 2002).

Objective

This project provided environmental regulators guidance on the use of stakeholder participation in watershed management. By evaluating the JLSP based on procedural, substantive and outcome criteria, I was able to determine the overall effectiveness of public participation in the JLSP. Specifically, this project addressed the following questions:

1. To what extent did stakeholders find the collaborative process beneficial to improving water quality in the Jordan Lake Watershed?

2. Did stakeholders find this process an effective means of developing a nutrient management strategy for the Jordan Lake Watershed?
3. To what extent did the stakeholder process influence the NC Division of Water Quality's regulation of nutrients in the Jordan Lake Watershed?

An additional objective of this project is for Drs. Lynn Maguire, Duke University, and Toddi Steelman, North Carolina State University, to use the analysis and results in a larger project they are currently working on. Their project will evaluate the success of participatory processes completed by the North Carolina DWQ and will provide guidance to the DWQ on when and where the use of participatory processes is warranted (Maguire and Steelman 2006).

Methods

To answer the research questions previously outlined I conducted a formative, or retrospective, evaluation of the JLSP. As suggested by the literature, I focused my evaluation on both the process and the outcome of the project. To conduct my evaluation I used a framework of substantive factors, procedural factors, and practical outcomes as defined by the research of Drs. Maguire and Steelman (Maguire and Steelman 2006). The framework identifies factors and outcomes whose existence is believed to be necessary for successful public involvement projects. I developed indicators for each criterion and used the attainment of these indicators to denote success (Table 1). For example, I searched for the attainment of stakeholder goals as an indicator of the achievement of participant claims.

To complete my evaluation, I collected data from stakeholder surveys, participant interviews, and process documents. I emailed stakeholder surveys to 41 stakeholders who had attended at least 20% of the meetings and for whom I could locate a valid email address. Ten surveys were returned for a response rate of 25%. Participant interviews were conducted with four stakeholders and two conveners. I selected stakeholders with diverse interests and high meeting attendance to participate in the interviews. I selected conveners who were integral to the stakeholder project for convener interviews. I gathered process documents such as meeting summaries and stakeholder correspondence from agency websites and newspaper archives.

My evaluation can be separated into three separate components: (1) the analysis of quantitative data collected from stakeholder surveys; (2) the analysis of qualitative data collected from stakeholder surveys, interviews, and process documents; and (3) a comparison of the recommendations produced by the JLSP and the rules proposed by the NC DWQ. Because of the limited number of stakeholder surveys returned, I could not conduct statistically meaningful analysis of the quantitative data. I did, however, graphically inspect the data using bar graphs. My qualitative analysis consisted of reviewing the text data for the presence of the defined indicators (Table 1). Within each indicator I then coded similar ideas or thoughts to discern themes. The analysis of text data using codes is recommended by the literature (Rossman and Rallis 2003).

Table 1: Evaluative framework of factors and outcomes, criteria, and indicators used to evaluate the Jordan Lake Stakeholder Project.

Factors/ Outcomes	Criteria	Indicators
Substantive Factors	Participant claims	Preconceived opinions on public participation
		Initial reactions to the JLSP
		Motivation for participation
	Strategic behavior	Actions taken by participants to undermine process
Procedural Factors	Process fairness	All relevant parties were represented
		Participants treated each other with respect
	Process design	Clear impetus for project
		Project goals/ outcomes were defined and clear
		Expectations of participants were clear
	Process execution	Consensus was defined for participants
		Sufficient and clearly defined duration of process
		Consistent representation of stakeholders
		Neutral and capable facilitators
		Conveners were competent in their role
		Public participation was included in decision-making
	Technical support	Sufficient education and comprehension of technical information
		Stakeholders' acceptance of technical information
		Sufficient technical information to make informed decisions
Practical Outcomes	Immediate products	Development of the TMDL and Nutrient Management Strategy
	Implementation	Inclusion of recommendations in subsequent state actions
	Public acceptance	Support for the recommendations of the JLSP and subsequent state actions
	Participant experiences	Satisfaction with JLSP
		Development of interactions/relationships among stakeholders and with the state
	Socioeconomic consequences	Perceptions on equity of recommendations and TMDL

To evaluate the major outcome of the JLSP, the stakeholder recommendations for a nutrient strategy, I identified specific recommendations from the Final Report of the JLSP (Triangle J Council of Governments 2005). I then compared these recommendations with the current rules proposed by the DWQ (15A NCAC 02B .0262-.0272 and .0311) to identify similarities and dissimilarities. Because the nutrient management strategy and TMDL have not yet been enacted by the state, identifying products of the JLSP that have been incorporated into the state's draft rules so far will act as proxy for the criteria for implementation listed in Table 1.

Summary of Results

The results of my evaluation are largely based on the responses from ten stakeholder surveys, four stakeholder interviews, and two convener interviews. Although themes did appear in the data and are reported in these results, it should be noted that these opinions are based on the responses from a small sampling of the JLSP participants.

Substantive Factors

In my evaluative framework, there were two criteria for substantive factors: participant claims and strategic behavior.

Participant Claims

Indicators of participant claims were (1) preconceived opinions on public participation, (2) initial reactions to the JLSP, and (3) motivation for participation. I identified the presence of all three indicators of participant claims. Participants seemed to realize the potential benefits associated with public participation projects. Four participants indicated that they realized from the beginning that the JLSP would be challenging and six stakeholders indicated that they participated in the project to voice their organization's concern of the potential impacts from regulation.

Strategic Behavior

The indicator for strategic behavior was actions taken by participants to undermine the process. Because the presence of strategic behavior would have been harmful to the success of the JLSP, the absence of strategic behavior is indicative of successful public participation projects. Although participant responses indicate several actions by both stakeholders and conveners that could be considered strategic behavior, none of the issues were reported by more than one participant. Therefore, there are not substantiated occurrences of strategic behavior in the Jordan Lake Stakeholder Project.

Procedural Factors

There were four criteria for procedural factors in my evaluative framework: (1) process fairness, (2) process design, (3) process execution, and (4) technical support.

Process Fairness

Indicators for process fairness were the representation of all relevant parties and the respectful treatment of participants. I found presence of neither of these indicators in my evaluation. Stakeholders widely agreed that all relevant parties were invited to participate but that agriculture and homebuilder groups chose not to participate. According to conveners, the Department of Transportation was overlooked as a potential stakeholder and did not receive an invitation to participate. The majority of participants indicated that stakeholders did not respect the positions of other stakeholders. For example, one stakeholder indicated that "there were times when one side dominated the conversation and the other side interrupted to end the conversation."

Process Design

In my evaluative framework, indicators for process design were (1) a clear impetus for project, (2) well-defined project goals and outcomes, and (3) clear expectations of participants. None of these indicators was found to be present in the JLSP. Many stakeholders did not see a clear impetus for the project because of either a lack of visible water quality impairment or

because they took issue with the chlorophyll *a* standard used as a proxy for nutrient concentrations. In the words of one stakeholder, "It was never concluded that there was a problem with Jordan Lake." In addition, many stakeholders did not find the goals of the JLSP or the role of stakeholders to be well-defined. "At times I struggled with what was the end, where were we going with this."

Process Execution

The indicators for process execution in my evaluative framework were (1) a clear definition of consensus, (2) sufficient and clearly defined duration of process, (3) consistent representation of stakeholders, (4) neutral and capable facilitators, (5) competent conveners, and (6) the inclusion of public participation in decision-making. Out of these six indicators, three (neutral and capable facilitators, competent conveners, and the inclusion of public participation in decision-making) were present in the JLSP. Three stakeholders expressed concern that consensus had never been defined. Four participants mentioned that for future projects a point person from each organization should be identified and required to attend; conveners should "make certain to have the same staff member attending meetings throughout the process." By establishing this consistency, conveners could have increased communication and continuity between meetings.

Technical Support

(1) Sufficient education and comprehension of technical information, (2) acceptance of technical information, and (3) sufficient technical information were indicators for technical support in my evaluative framework. Education and comprehension of technical information was the only indicator for technical support that I found present in the JLSP. Participants indicated that a group of stakeholders had concerns over the validity of the nutrient data presented by the DWQ and therefore did not accept the data. Many participants felt that several meetings were "hijacked by contention" brought about by the DWQ's failure to address these concerns. Several stakeholders expressed concern that there were not sufficient data collection points within the tributaries to determine the source of nutrients and to make policy decisions. "[The DWQ made] great unsubstantiated leaps [in policy decisions] based on limited information."

Practical Outcomes

Criteria for procedural factors in my evaluative framework were defined as (1) immediate products, (2) implementation, (3) public acceptance, (4) participant experiences, and (5) socioeconomic consequences.

Immediate Products

I defined the development of the TMDL and nutrient management strategy as immediate products in my evaluative framework. Although the JLSP was not successful in developing a comprehensive nutrient management strategy, the project was successful in developing a TMDL that was approved by the Environmental Protection Agency and recommendations that have influenced the rules proposed by the state. Regulations aimed at existing development, flexibility in compliance with nutrient trading, and re-evaluation of regulations consistent with adaptive management principles are all the result of the JLSP.

Implementation

The TMDL developed by the JLSP has been approved by the Environmental Protection Agency (North Carolina Division of Water Quality 2007). The majority of the recommendations of the project have been incorporated into the nutrient management strategy proposed by the DWQ, including provisions for the use of adaptive management, equal reductions from point and non-point sources, and reduction of nutrient loads from existing development.

Public Acceptance

I used support for the recommendations of the JLSP and subsequent state actions as an indicator of public acceptance. I did not find presence of this indicator in my review of the JLSP. The qualitative results indicate that, of the stakeholders who responded to the survey and interview requests, the recommendations are not widely supported for a variety of reasons. Two participants felt that the "recommendations were weaker" than they would like to see; while other stakeholders felt that the recommendations were "too stringent." Four stakeholders expressed concern that the recommendations were a major compromise by all parties, and thus were supported by no one.

Participant Experiences

Stakeholders' satisfaction with the JLSP and the development of interactions and relationships among stakeholders were indicators of participant experiences. Both of these indicators were present in the JLSP. Four out of nine stakeholders indicated their time was well-spent and that it was a beneficial process, even if they did not agree with the final outcome. A majority of participants agreed that communication among stakeholders increased due to the JLSP.

Socioeconomic Consequences

In my evaluation, I used perceptions of the equity of the recommendations and the TMDL as indicators for socioeconomic consequences of the JLSP. This indicator was not found to be present in the JLSP. Two themes emerged regarding the socioeconomic consequences of the JLSP. One theme was the concern that jurisdictions upstream from Jordan Lake are facing enormous implementation costs while the jurisdictions downstream from the lake are the ones who will benefit from the improved water quality. The second theme, which elicited varied responses from participants, dealt with the allocation of reductions between point and non-point sources. Several participants believed that point and non-point source reductions were allocated uniformly and equitably based on the fact that each was required to reduce the same percentage. However, other stakeholders felt that point sources would end up carrying the burden of reductions.

Conclusion

The majority of participants in the JLSP were unresponsive to requests to participate in this evaluation. Based on my discussions with participants who did wish to participate in the evaluation, I believe the poor response rate can be attributed to two main factors: (1) because the JLSP was not a pleasant experience for most participants due to the contentious nature of the issues and the large amount of time it required, stakeholders were reluctant and even unwilling to become involved again; and (2) because the Jordan Lake rules have not been finalized, stakeholders were reluctant to discuss the project.

There is no question that the JLSP was a long and contentious process. The fact that nearly four years later the rules are still being debated is proof of this. Because the results of this evaluation are based primarily on communication with a small proportion of the participants of the project, the answers to the original research questions are tentative.

Regarding the first research question, "Did the stakeholder project lead to improved water quality?", most participants are skeptical that large reductions in nutrients will occur. This skepticism is in part due the high levels of uncertainty surrounding the data and the nutrient response model. Participants also seemed skeptical that the regulations would be implemented "as is" due to the enormously high costs associated with the rules. The DWQ estimates costs associated with compliance for the first five years of the rules to be $108 million and lifetime costs to be $905 million (North Carolina Division of Water Quality 2007). For these reasons I do not believe stakeholders found the process to be beneficial to improving water quality in the Jordan Lake Watershed.

In answering the second question, based on the results of the qualitative analysis, I do not believe stakeholders consider the JLSP to be an effective means for developing a nutrient management strategy. The project did not produce its intended product of a nutrient management strategy, only recommendations for a strategy. And while many of these recommendations were incorporated into the subsequent strategy, much additional time was spent by all participants to develop the strategy after the formal end of the JLSP. Stakeholders affected by these rules seem to be exhausted with the continuous debate and are ready for the process to be behind them.

Finally, in response to the third question, the products of the JLSP did seem to influence the DWQ's regulation of nutrients in the Jordan Lake Watershed. There are several components of the draft rules (adaptive management, existing development, and nutrient trading) whose inclusion in the final rules are attributable to the JLSP.

From the evaluative framework, it is apparent that procedural factors are the most lacking in the Jordan Lake Stakeholder Project. Issues surrounding process fairness, design, and execution as well as technical support were repeatedly mentioned by stakeholders and conveners as deficiencies. Therefore, the DWQ should take special care in developing the process for future public participation projects. One action that could be taken is to develop a stakeholder charter that defines consensus and the goals of the project, as well as the roles and expectations of stakeholders. This document would assist stakeholders in understanding how to participate in the process as well as assisting conveners and facilitators in their execution of the process.

The issues surrounding the regulation of nutrients in the Jordan Lake Watershed are contentious and complex. The JLSP was successful in bringing together a diverse group of stakeholders to discuss these issues and collaborate on how they might be addressed. The issues in regulating this watershed, however, may be too great to be overcome by collaboration. However, we cannot know what would have happened with the regulations in the absence of the JLSP. Although the process thus far has been lengthy and contentious, we may have been worse off without the JLSP.

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