Determinants of Success in Interorganizational Collaboration for Natural Resource Management

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DETERMINANTS OF SUCCESS IN INTERORGANIZATIONAL COLLABORATION FOR NATURAL RESOURCE MANAGEMENT

By

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To my family, who sacrificed in many ways to help me arrive where I am today.
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LIST OF ABBREVIATIONS

AOC: Areas of Concern
ARC: Appalachian Regional Commission
CAC: Citizens Advisory Committee
CCMP: Comprehensive Conservation and Management Plan
C.F.R.: Code of Federal Regulations
CREST: The Columbia River Estuary Study Taskforce
DCA: Department of Community Affairs
DLCD: Oregon Department of Land Conservation and Development
DNR: Department of Natural Resources
DRBC: Delaware River Basin Commission
EDA: Economic Development Agency
EIS: Environmental Impact Statement
EMI: Environmental Mediation Institute
EPA: Environmental Protection Agency
ESA: Endangered Species Act
FWS: Fish and Wildlife Service
GLWQA: Great Lakes Water Quality Agreement
HCP: Habitat Conservation Plan
HMDC: Hackensack Meadowlands Development Commission
IJC: International Joint Commission
KMO: Kaiser-Meyer-Olkin
MDNR: The Michigan Department of Natural Resources
MOE: Ministry of Environment and Energy
NEP: The National Estuary Program
NOAA: National Oceanic and Atmospheric Administration
NRD: Natural Resource District
ORSANCO: Ohio River Valley Water Sanitation Commission
PCA: Principal Component Analysis
RAP: The Remedial Action Plan
RBC: River Basin Commissions
RPAA: Regional Planning Association of America
RPNY: Regional Plan of New York
SAMP: Special Area Management Plan
SEWRPC: The Southeast Wisconsin Regional Planning Commission
SFWMD: South Florida Water Management District
SWFWMD: Southwest Florida Water Management District
SRBC: Susquehanna River Basin Commission
TAC: Technical Advisory Committee
TNC: The Nature Conservancy
TVA: Tennessee Valley Authority
U.S. FWS: The U.S. Fish and Wildlife Service
WDNR: Wisconsin Department of Natural Resources
WPP: The Watershed Partnerships Project
ABSTRACT

Regional planning and management are problematic in many countries. Control over land and natural resources is fragmented among different levels of government and agencies with narrow missions. Interorganizational collaboration is advocated as a solution, but research to date has predominantly involved case studies with little theoretical rigor. The main objective of this study is to identify the determinants of success in interorganizational collaboration. There is extensive literature on why organizations collaborate, but what factors make collaborations successful is not well documented. To add to the knowledge of this field, this research integrates theory and empirical research from organizational theory, management studies, public administration, urban and regional planning, and environmental planning and natural resource management to define operational measures of successful collaborative planning and applies multivariate analysis to assess hypothesized determinants of success.

Natural resource management provides a very good opportunity to examine this due to the fragmentation of administrative structure. However, the implications of the results are not limited to natural resource management. The findings will be useful in understanding collaborative planning and decision making in many other interorganizational settings including regional planning, metropolitan area planning, economic development, and growth management.

Understanding what makes collaborations work is important, because despite the documented need to collaborate, many efforts take years to bear fruit, and most do not achieve much. I believe this is due to poor understanding of the collaboration process and its elements. If this process is thoroughly examined and the factors that lead to success are determined, it will help future collaboration efforts immensely by identifying the circumstances in which collaboration is most likely to succeed and the factors that can be manipulated to enhance the likelihood of success.
The research methodology includes multivariate analysis of a mail survey of participants in 70 collaborative natural resource planning processes. Representatives of 3 to 4 organizations that collaborated in the development or revision of a management plan for one of six natural resource management program types were surveyed: (1) Remedial Action Plan development under the Great Lakes Water Quality Agreement, (2) the National Estuary Program of the United States Environmental Protection Agency Office of Water, (3) the National Oceanic and Atmospheric Administration’s National Marine Sanctuary Program, (4) Habitat Conservation Plan development under the Endangered Species Act, (5) the Surface Water Improvement and Management Program of Florida Water Management Districts, and (6) National Estuarine Research Reserves administered by the National Oceanic and Atmospheric Administration. The survey included questions on the measures and determinants of success identified from the collaboration literature as well as open-ended questions designed to help identify other ways to define success and other determinants of success.

The dependent variable, success, is measured objectively and subjectively and includes responses to single survey questions as well as arithmetic average indices of four major theoretical categories (realization of goals, satisfaction of collaboration participants, enhanced interorganizational relations, and efficiency) and component-based scales. Principal Component Analysis was utilized to determine the elements of the components and their weights. The independent variables, determinants of success, are also grouped together by arithmetic average indices based on theoretical groupings as well as component-based scales. The determinants of success include member factors that are related to the participants in the collaboration, process factors that are related to discretion over the process of collaborating, and resource factors that may be beyond the control of the collaboration participants.

The results of the multivariate regression analysis support the hypothesis that most of the member factors, process factors and resource factors influence the success of interorganizational collaboration. However, due to multicollinearity between the independent variables it is not possible to investigate the individual contributions of each factor to success. The models show clearly that the relationship between the parties, equity in decision making, participant characteristics (inclusion of all affected stakeholders, proportional representation, and effective leadership), agreement between the participants on ground rules and the scope of the
collaboration, and ripeness of the issue are important for collaboration success no matter how success is measured.
CHAPTER 1
INTRODUCTION

Regional planning and management is a problematic issue under the current fragmented administrative structure of the USA and many other countries. Control over many natural resources and large ecosystems is usually fragmented. Different jurisdictions and different levels of government have differing regulations and standards as well as differing degrees of power to enforce these regulations. This study will analyze one of the techniques used to overcome this problem: collaboration.

I. The Importance of the Issue

Planning and management of environmental issues is one of the areas where the fragmented administrative structure creates a major difficulty. Natural resource boundaries almost never correspond to administrative boundaries. Yet, the need to plan and manage the natural resources and ecosystems as a whole and to develop integrated policies has been widely acknowledged (Rabe, 1986; Slocombe, 1993; Grumbine, 1994; Holling 1995; Sparks, 1995; Yaffee et al., 1996; Hartig et al., 1998). This requires cooperation among organizations and extensive social interaction: sharing analytical information, identifying trade-offs and coalitions for joint action, and learning from surprising outcomes. These interactions are ways to negotiate shared agendas that individual organizations cannot achieve by themselves (Gray, 1985; Gray, 1989; Alter and Hage, 1993; Lee, 1995). Westley (1995) points to the fact that no one organization, even in the case of the least jurisdictionally complex ecosystem, can solve the problems of ecosystem management unilaterally.

There is extensive literature on why organizations collaborate, but there is not enough about what makes the collaborative actions successful. The organization theory literature
identifies reducing environmental uncertainty (Schoorman et al., 1981; Provan, 1982; Borys and Jemison, 1989), pursuing common or mutually beneficial goals and interests (Schermherhorn, 1975), and meeting necessary legal or regulatory requirements (Oliver, 1990) as factors that lead to interorganizational cooperation. Among the other reasons are shared agendas that individual organizations cannot achieve by themselves (Lee, 1995); fragmented jurisdictional structure (Westley, 1995); and cases where the acquisition of power is difficult (Mulford and Rogers, 1982).

Especially in the area of collaboration for natural resource management, which is the focus of this study, there is not much research and knowledge. Yaffee et al. (1996) state that until their work whether cooperative approaches to ecosystem management were having better results as opposed to competitive approaches was not known. To add to the knowledge of this field, this research attempts to identify the determinants of success in interorganizational collaboration in natural resource management. This is achieved by a survey of collaborative natural resource management planning initiatives.

Gray (1989) divides collaborative processes into three phases: problem-setting, direction setting, and implementation, and claims that different conditions facilitate successful collaboration during each phase (Gray, 1985). The focus of the research is limited to the planning and decision making stages of collaboration, which includes the first two phases of Gray’s classification, excluding program implementation.

However, the implications of the results are not limited only to collaborations for natural resource management. Findings from this study should have value to better designing collaborative planning and decision making in many interorganizational settings including regional planning, metropolitan area planning, economic development, and growth management. Regional economic development and resource allocation/management issues also have the contingencies of natural resource management discussed in Chapter 2 that make collaborative decision making more effective and result in better outcomes: non-market situations, transboundary problems, multi-party and multi-issue situations. The next section provides definitions of the key concepts that will be used throughout the dissertation.
II. Definition of Key Concepts

*Interorganizational cooperation* is defined by Schermerhorn (1975: 847) as “the presence of deliberate relations between otherwise autonomous organizations for the joint accomplishment of individual operating goals.” *Coordination* is defined by Warren et al. (1974: 16) as “a structure or process of concerted decision making or action wherein the decisions or action of two or more organizations are made simultaneously in part or in whole with some deliberate degree of adjustment to each other.”

Mulford and Rogers (1982: 12) define *interorganizational coordination* as “the process whereby two or more organizations create and/or use existing decision rules that have been established to deal collectively with their shared task environment.” They further distinguish between cooperation and coordination in terms of presence of decision rules, degree of formalization present, kinds of goals emphasized, amount of resources involved, primary actors, relative threat to autonomy, and implications for vertical and horizontal ties. Coordination is more formal than cooperation, requires more resources and creates more interdependence thus posing more threat to autonomy. With cooperation autonomous organizations relate in order to accomplish their respective individual goals whereas with coordination, the joint decisions and/or actions result in joint outcomes.

Mulford and Rogers (1982: 18) also distinguish between managed and unmanaged coordination in that unmanaged coordination “occurs in a random or self-regulating fashion, as in a marketplace ... includes latent and unanticipated consequences as organizations adapt to each other’s policies. In unmanaged coordination, shared recognition or identification with a common issue or problem is less apparent.” They further identify three types of managed coordination strategies: mutual adjustment strategies, alliance strategies, and corporate strategies. They distinguish between the three strategies in terms of focus, actors involved, degree of formalization, resource commitments, focus of power, focus of control, and goals.

There are few if any, shared goals toward which the units work in a mutual adjustment strategy. Coordination tends to focus on specific cases rather than on the development of a delivery system. Corporate strategies have the focus on an interagency system. Alliance strategies are in between the corporate and mutual adjustment strategies and contain elements of both. They represent efforts to coordinate autonomous organizations without the authority of a
formal hierarchy and include various types of coordination strategies such as federation, coalition and mediated councils.

Gray (1989: 5) uses the term *collaboration* to define the “process through which parties who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible.” Based on this definition, the term collaboration is defined here as a broader concept which encompasses both cooperation and coordination and is used as such throughout this study. In this sense collaboration encompasses a spectrum of strategies having cooperation with no formal rules on one end and Mulford and Rogers’ (1982) three managed coordination strategies on the other. Table 1.1 shows in detail the differences between these strategies. Because the difference is not distinguishable Mulford and Rogers’s dimensions of focus and focus of goals are combined.

The next section of this dissertation summarizes the traditional theoretical arguments for why regional planning and management is needed, particularly in natural resource management. The last section presents the normative arguments on the need for collaboration in regional planning and natural resource management.

### III. Regional Planning

The following sections present the traditional theoretical arguments for why regional planning and management is necessary; the appropriate region for management; and the need to manage natural resources at the regional level.

1. **The Need for Planning at the Regional Level**

Lim (1983: 9) defines regional planning as “public sector activities encompassing economic, social and physical elements to formulate and implement appropriate public policy in an area covering more than one existing local jurisdiction.”

Lim provides an overview of the fundamental justifications for regional planning and reports that most of these are based on efficiency and equity. On the efficiency side of the argument, it is suggested that a regional approach will lower the service cost as a result of scale economies in the production of public services by integrated units; will deliver public goods more effectively on a region-wide basis; will internalize all interjurisdictional externalities; and will facilitate the exchange of information and coordination among subunits within a region. For
equity, the proponents argue that interjurisdictional conflict resulting from high levels of political decentralization and territorial fragmentation has limited the public sector’s ability to deal with issues having significant welfare implications. They argue that a regional approach can reduce fiscal disparities among subareas and can distribute income more effectively than a fragmented system.

Table 1.1. Collaboration Continuum

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Cooperation</th>
<th>Managed</th>
<th>Coordination</th>
<th>Strategies</th>
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<tr>
<td></td>
<td></td>
<td>Mutual Adjustment</td>
<td>Alliance</td>
<td>Corporate</td>
</tr>
<tr>
<td>Actors</td>
<td>Lower ranking members (subordinates)</td>
<td>Professionals or staff members at the supervisory level</td>
<td>Administrators (agency heads) or professionals</td>
<td>Administrators</td>
</tr>
<tr>
<td>Formalization</td>
<td>No formal rules</td>
<td>Few rules</td>
<td>Negotiated rules</td>
<td>High formality</td>
</tr>
<tr>
<td>Resources</td>
<td>Minimal resources committed</td>
<td>Few resources committed</td>
<td>Medium level of resource commitment</td>
<td>Resource commitment high</td>
</tr>
<tr>
<td>Focus of power</td>
<td>Decentralized power, largely independent; little threat to autonomy</td>
<td>Decentralized power but interdependent</td>
<td>May or may not use central administrative unit</td>
<td>Centralized power</td>
</tr>
<tr>
<td>Focus of control</td>
<td>Informal trade offs and reciprocity in the absence of rules</td>
<td>Reliance on informal norms and benefits for agencies</td>
<td>Interagency systems decisions may have to be ratified</td>
<td>Interagency systems decide regulations that represent collective interest</td>
</tr>
<tr>
<td>Goals</td>
<td>Vague, individual organizations’ goals</td>
<td>Primary focus on agency goals</td>
<td>Agency goals and collective goals</td>
<td>Collective goals stressed</td>
</tr>
</tbody>
</table>


Lim (1983: 8) finds the evidence for these arguments conflicting and concludes that “neither a completely unified system nor a highly fragmented system affords a satisfactory
solution to the governance of local areas” and the benefits of an integrated approach do not justify “a full-scale integration of fragmented local institutions.” Kelly and Becker (2000: 297) emphasize that “the patterns of development that affect people’s lives are regional” and therefore “conducting local planning in some way misses the point.” Among the negative consequences of numerous local governments preparing separate plans they mention the potential of confusion that may be created.

The acknowledgment of the benefits of planning at the regional scale leads to the discussions of the definition of the term “region.” Defining appropriate boundaries for planning and management purposes has always been tricky. Tiebout (1964) claims that regional boundaries are usually based on the variables under study and sometimes external factors such as the availability of data or political jurisdictions may affect the delineation of the boundaries. Friedmann (1964) shows how economic development transcends boundaries and how different regional boundaries will be necessary at different stages of development for efficient planning. He further states that “no one set of region is ever completely satisfactory. Each problem must be analyzed in its own terms” (p. 500).

2. The Need of Regional Planning for Natural Resource Management

Rivers have a perverse habit of wandering across borders ... and nation states have a perverse habit of treating whatever portion of them flows within their borders as a national resource at their sovereign disposal. But water is ambient, and the consequences of its use or removal are felt downstream (Waterbury, 1979: 2).

Natural resource management is a problematic issue because most of the time administrative boundaries do not coincide with natural features (Griffin, 1999). Different jurisdictions and different levels of government have differing regulations and standards as well as differing degrees of power to enforce these regulations. The result is ineffective management of the natural resources.

When the natural resource problems concerned are ecological in nature, ecosystems can be used to draw the appropriate physical/geographical boundaries for the focus of regional planning. Slocombe (1993: 612) defines an ecosystem as “...a bounded, self-maintaining system of varied, living and nonliving, interacting parts.” He further articulates:

A whole or complete ecosystem is one whose boundaries reflect ecosystem and population processes and patterns, providing sufficient area, diversity, and

Control over large ecosystems is usually fragmented, however.

Cortner and Moote (1999) propose that natural resource management is undergoing a paradigm shift from the traditional, pragmatic, sustained-yield resource management with its focus on utilitarian values towards ecosystem management with its reverence and respect for nature’s complexity and its priority of conserving ecological sustainability.

Grumbine (1994: 31) states that ecosystem management “integrates scientific knowledge of ecological relationships within a complex sociopolitical and values framework toward the general goal of protecting the native ecosystem integrity over the long term.” He identifies five ecosystem management goals: maintaining viable populations of all native species in situ; representing all native ecosystem types across their natural range of variation within protected areas; maintaining evolutionary and ecological processes such as the disturbance regimes, hydrological processes and nutrient cycles; managing over periods of time long enough to maintain the evolutionary potential of species and ecosystems; and accommodating human use and occupancy within these constraints. He argues that the goals of ecosystem management contrast with traditional resource management goals. Other scholars also point out the conflict between the two legitimate and necessary social goals of economic growth and maintaining environmental quality both of which are essential for long-run prosperity (Whaley, 1993). This brings parties with opposite goals against each other.

Salvesen’s and Porter’s (1995) concept of collaborative, area-wide planning supports this idea. This concept is said to have been borne out of the need to address problems with greater than local significance. They distinguish area-wide planning from traditional regional planning: area-wide planning focuses on conflicts between development and protection of natural resources in a specific geographic area, such as a watershed, estuary, or endangered species habitat. The areas typically encompass a number of land ownerships and several local jurisdictions.

Viessman and Welty (1985) discuss the institutional issues that create problems in water resources management. These include the diffusion of legislative jurisdictions at all levels of government and how split legislative committee jurisdictions foster inconsistencies in programs,
duplication of efforts and conflicts in management. Another issue that exacerbates these problems is the inability of federal, state, and local agencies to coordinate their programs.

Allocation of water resources is but one example of natural resource problems which require a balancing among interests; do not respond well to market forces; and cannot be handled by the state alone because of institutional problems (Grigg, 1999). MacKenzie (1996: 4) points out that “the complexity of the water resource system can be further expanded to include the entire ecological system, within which water is only one natural component.” Salwasser et al. (1987) state that a single organization or landowner rarely owns a large enough tract of the right kinds of habitats to support a self-sustaining population of certain animals with large home ranges.

Griffin (1999) shows that air, wildlife, and other natural resource issues are also effectively transboundary problems. However, the boundaries for these are different than those of the watersheds and a change of institutional boundaries to watersheds will not solve the problem. Roberts (1971: 121) gives the example of air pollution and notes that “the relevant zone of physical interaction would be very different from that of the river basin.” Adler (1995) mentions the challenge by recent ecoregion research that the hydrologic watershed might not be the best unit within which to address even aquatic ecosystem health. According to the challengers, due to the heterogeneity of the river basins, “ecoregions that distinguish among areas using multiple variables in land and water characteristics better represent differences in ecological variability” (Adler, 1995: 986).

Adler (1995) demonstrates that devising boundaries is not simple because the natural boundaries for ecosystem restoration and protection vary significantly depending on the resource at issue. The difficulty of setting appropriate boundaries is also faced by ecologists. The question of how big is big enough for biodiversity conservation purposes does not have a clear answer. But it is emphasized that “species typically occur in patches exceeding an approximate threshold size [and] this threshold varies amongst species” (Begon et al., 1986: 943). This means that defining ecosystem boundaries has a conceptual element depending on the particular aspect of the ecosystem conservation managers are concerned with and the scale of their plans. A different set of boundaries defining the problemshed is necessary for each type of problem, but this would not make natural resource management less complex than it is. Griffin (1999: 509) shows that “a
problemshed might include a parcel of land in one salmonshed, and be part of another airshed, and yet another bearshed.”

In addition, as Slocombe (1993) points out it is extremely difficult to abolish or change the existing administrative boundaries. Adler (1995: 991) reports that even organizing water resource programs according to watershed boundaries has proved to be difficult politically since “each level of government guards its authority jealously.”

If these two factors of the need for a different boundary for each problem and the difficulty of changing the existing political boundaries are both taken into account, it becomes obvious that the only viable way to effective natural resource management is through collaboration between involved organizations.

IV. The Need to Collaborate in Regional Planning and Natural Resource Management

Today in recognition of the need for regional planning, the regional focus in the United States embraces area-wide transportation, water quality, and air pollution (Alexander, 1992). However, acknowledging the need for regional planning has not been enough. Most attempts for regional planning have failed. This section examines the reasons for this failure focusing on why collaboration is necessary for regional planning in general and for natural resource management in particular.

1. Why Regional Planning Has Not Worked

Ingram (1973: 10) states that “the performance of multi-state regional organizations has been disappointing” largely due to the restraints imposed by political viability. She argues that to be viable regional agencies had to tailor their actions to build support and this compromised their ability to approach resource problems in a comprehensive, coordinated, regional manner. She concludes that “where there are fragmented and conflicting interests with their own resources of power and authority, then decisions are going to be made by a process of negotiation and consensus building, not by the fiat of a regional agency” (Ingram, 1973: 17). The failure of regional organizations demonstrates the need for a collaborative approach that allows the parties to negotiate for holistic management of natural resources.

A close examination of some of the major regional planning initiatives provides a list of factors responsible for their failure: lack of formal organization, absence of a focused program, exclusion of some levels of government, lack of public and political support, limited
commitment, limited/vague mandate, lack of authority and capacity, budgetary constraints, lack of executive leadership, no veto power, problems of coordination, the necessity to act through consensus, dependence on other powerful governments, mistrust among levels of government, lack of a central data system, and lack of established forums for alternative dispute resolution processes. Following are some examples of regional planning initiatives of urban planning (Regional Planning Association of America); regional economic development (Tennessee Valley Authority, Economic Development Agency, and Appalachian Regional Commission); and finally a series of natural resource related examples (Interstate Compacts, River Basin Commissions, Nebraska Natural Resource Districts, Florida Water Management Districts and the Great Lakes Water Quality Agreements).

i. Regional Planning Association of America

The Regional Planning Association of America (RPAA), founded in 1923, was one of the earlier attempts at regional planning in the United States (Alexander, 1992). The RPAA propagated regional planning concepts and promoted regional planning practice. Among the founders were Charles Harris Whitaker, Clarence Stein, Lewis Mumford, Benton MacKaye, Henry Wright, Frederick Ackerman and Stuart Chase.

Spann (1996) mentions lack of formal organization and the absence of a focused program resulting from the exclusion of state and regional governments from the RPAA program as reasons for failure. RPAA had officers but little formal organization, it was “a loose association based on the voluntary cooperation of like-minded professionals” (Spann, 1996: 41). He notes that in spite of a few references to cooperating with these authorities the program had little place for government. Without the integration of government RPAA lacked a natural focal point around which to build a coherent policy position and thus failed to integrate its recommendations into one consistent whole. Luccarelli (1995) relates the RPAA’s lack of success to its inability to generate the public support necessary to realize its vision.

Alexander (1992) offers another explanation. He believes that this regional planning attempt failed because RPAA’s utopian ideas conflicted with the Regional Plan of New York and Environs’ (RPNY) more practical proposals, and the second agency had more power to influence the area’s development. RPNY was an ambitious regional plan initiated in 1922 with a large grant from the Russell Sage Foundation and embraced more than 5,000 square miles within a 50-mile radius of New York city including its extensive suburbs in New Jersey and
Connecticut (Spann, 1996). Spann (1996: 125) notes that for the RPAA a region meant “a natural area defined by geography and culture,” for the planners of RPNY it was “an arbitrarily chosen area of metropolitan influence determined by the distance one could travel from New York City within two hours.”

ii. Tennessee Valley Authority

Another important attempt at regional planning was the Tennessee Valley Authority (TVA), a regional economic development plan initiated in 1933 by President Franklin Roosevelt as a response to the poverty in the region (Alexander, 1992). Covering the 41,000 square-mile basin of the Tennessee River in the seven states of Alabama, Mississippi, Georgia, North Carolina, Virginia, Kentucky and Tennessee, the TVA was the largest public works project in the modern world to that time (Hancock, 1988). Its aim was to bring planned industrial development that was balanced with agriculture to this underdeveloped rural region. It did not work out as planned (Luccarelli, 1995).

Clapp (1951: 319) states that the TVA was established because no other existing federal or state agency had the authority or the capacity to plan and carry out a program that would “see the river as a unit and the region as a whole.” The activities that it carried out were too great or too broad in scope for state or local agencies or private enterprise to undertake.

The TVA is described as “a federal administrative or action agency” (Hancock, 1988: 203); “a semiautonomous arm of the federal government” (Luccarelli, 1995: 158); and a government corporation with three directors appointed by the President (Derthick, 1974).

Luccarelli (1995) points out that the major regional planning experiment, the TVA, failed because, like the RPAA, popular or elite bases of political support were not consolidated in the experiment. He reports that as part of the corporate dominated national economy, larger commercial farms and industries that were economically successful were politically better organized as well. They manipulated the system according to their own interests and outcompeted cooperatives and small-scale farmers who were not organized to exert political power on their behalf.

Stuart Chase of the RPAA (Spann, 1996) noted that among the three missions of the TVA - the improvement of the well-being of the people in the area; flood control; and hydroelectric power - the first and the most general one was also the weakest in political acceptance when compared with the others. Alexander (1992) argues that in the case of the TVA,
conflicting priorities of power generation and agricultural extension left an agency that was little more than a publicly owned power utility. Jacob Crane, a planner on the TVA staff and then the president of the American City Planning Institute (Spann, 1996: 160-161), agrees that the Authority did not have the force to reshape the region because it had no real association with state governments, but “it was probably a good type of agency for public power development.” Within a year of the formation of the TVA he pointed out that “the planning area had little cohesion, especially in the political sense, because it included portions of several different states.” Kenney (1995: 846) argues that one weakness of TVA as a federal regional agency comes from “its subordination of the states and its relative immunity from a system of checks and balances. High authority, when combined with high autonomy, can support innovation equally as well as despotism. Elements of both have been seen in the Tennessee Basin.”

iii. Economic Development Agency

Regional planning and development received new impetus in the U. S. in 1965 with the creation of the federal Area Planning Agency - later Economic Development Administration (EDA) (Alexander, 1992). It was created to administer a new national program for depressed areas. The poverty of the Appalachian region was a concern at the time and initially the redevelopment was planned to be handled by EDA giving this region a special treatment. But the commitment was limited and produced no results in two years (Derthick, 1974). This resulted in a search for alternative channels for Appalachian development.

EDA works with the Department of Commerce to award grants and technical help to distressed areas (Mills, 1994). The agency was long criticized for spending taxpayers’ money inappropriately and wastefully (Ota, 1998) and accused by the Reagan and Bush administrations of giving pork barrel handouts to states (Mills, 1994).

EDA survived numerous attempts of elimination during the Reagan government but had not been formally reauthorized since 1982. In the meantime appropriations by its congressional supporters sustained the agency. In 1998 EDA was reauthorized for 5 years for the first time in 17 years (Ota, 1998). Clinton administration’s plans to fund regions hurt by defense cutbacks, military base closings and natural disasters through the agency was criticized (Mills, 1994). Former EDA administrator Orson G. Swindle III (Ota, 1998: 2821), who promoted efforts to downsize the agency in the late eighties, said that “the bill failed to eliminate EDA’s historic role as a ‘cookie jar for politicians’.”
iv. Appalachian Regional Commission

In 1965 the Appalachian Regional Development Act was passed to bring the Appalachian region from poverty to the economic level of the country as a whole for the benefit of eleven states. This number was later increased to include thirteen states: Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia and West Virginia. The act created the Appalachian Regional Commission (ARC) as a joint federal-state body to plan and coordinate the programs of the act.

Platt (1996: 361) summarizes the physical conditions and resource management issues that necessitated the act as the area’s “steep rugged terrain, poor soil, widespread erosion, flash flood hazards, physical isolation, water pollution, mine surface subsidence, acid mine drainage and unstable mining waste tips.” Appalachia’s social problems in the 1960s included poverty, high unemployment, low education level, substandard housing, high infant mortality, high rate of disease and illnesses, out migration, and depressed economy.

The executive board of the commission includes the governors of the thirteen states and a federal co-chairperson. Decisions must be approved unanimously. The ARC has an executive director and a small staff. The administration budget is shared equally by the federal government and the thirteen states (Platt, 1996). Derthick (1974: 81) states that the commission began “with a broad and vague mandate, very limited authority, and no program money of its own.” Even though it could make recommendations for program and project expenditures and to develop spending criteria, it was not authorized to make expenditures. Its general mandate was “to promote the economic development of Appalachia and to coordinate public and private expenditures for that purpose ... However, it was given no means with which to induce other organizations to support its objectives” (p.81). ARC allocates funds appropriated by the Congress each year among its member states based on the state spending plans submitted by the state governors (Appalachian Regional Commission, 2000). The ARC has no operating functions and its programs cannot be implemented unless it has consulted with state officials.

Despite the revelation of the ARC’s self-evaluation that it had offered no regional solution (Derthick, 1974), Title V of the Public Works and Economic Development Act of 1965 authorized similar regional commissions for other parts of the country with far less financing and less independence from federal executive supervision. Congress reauthorized the ARC and its program in 1971. The ARC is still functioning (Appalachian Regional Commission, 2003).
Along with EDA, ARC has also been criticized for pork barrel giveaways. Van Atta (1993) reports that the billions of dollars spent on building highways, sewer lines, industrial parks and tourist attractions have failed to create long term-employment, especially in the poorest part, central Appalachia. He points out that most of the money went to the home states of politically powerful Congressmen and other officials. Other critics argue that businesses from outside the region that exploited the region’s people and resources benefited from ARC funds (Isserman and Rephann, 1995).

Among the reasons for pork barrel giveaways, Van Atta (1993: 56) mentions the expansion of the area from 360 counties in 11 states to 399 counties in 13 states to include places like Marshall County, Mississippi, which “is not by any stretch of the imagination part of Appalachia.” Isserman and Rephann (1995: 345) report that “New York was added at the insistence of Senator Robert Kennedy and South Carolina as the result of local pressure on the state’s congressional representatives.” Gatrell and Fintor (1998: 888) describe one of the ways for Congress members to get reelected as “funnel[ing] federal projects into their home districts” and they argue that “ARC had the mandate to do just that” so “in the end, [it] was bounded in such a fashion as to benefit all committee members it could reasonably accommodate.”

v. Interstate Compacts

Interstate compacts are agreements between states that require Congressional approval (McCormick, 1994). There are twenty such compacts in the western U.S. for resolving transboundary water conflicts. There are other compacts in the eastern U.S. for water resources management. Ingram (1973) argues that none of the more than 30 compacts that were established following the Colorado River Compact of 1922, nor the TVA had been altogether successful. Following are two examples, one from the west, one from the east of the country: the Colorado River Compact and the Ohio River Valley Interstate Compact.

Colorado River Compact

The scarcity of water in the western United States was causing disputes and rivalry among the states over the waters of the Colorado River as early as 1879. The river is the major water supply for 244,000 square miles spreading into seven states in the U.S. and over 2,000 square miles in Mexico. This scarcity prompted the drafting of an interstate treaty involving the seven basin states of Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming and the federal government in 1922 (Hundley, 1975). Six of the seven states ratified the
Colorado River Compact in 1923 but Arizona did not ratify it until 1944 (Plummer and Hinds, 1980). The compact did not become effective until 1929 because of the ratification battles among the states, and then only in a modified way including only six of the states and the federal government.

The compact divided the waters of the river between the upper and lower sections of the watershed at an arbitrary point about a mile from Lees Ferry protecting the concerned upper basin states of Colorado, New Mexico, Utah and Wyoming from unlimited development in the faster growing lower basin states of Arizona, Nevada and California (Plummer and Hinds, 1980). However, the compact left it to the upper and lower sub-basin states to apportion specific amounts of water to each (Hundley, 1975). The upper states did not do so until 1948 when they signed the Upper Colorado River Basin Compact which created the Upper Colorado River Commission to administer the rules and regulations for curtailing water uses (Bradley and Dworkin, 1980). The lower states never apportioned the water among themselves because of disagreements between Arizona and California which were finally settled by the U.S. Supreme Court in 1963. Hundley (1975: 307) states that the compact was “advocated as a way to avoid costly and time consuming litigation,” but until the 1963 Supreme Court decision Arizona went to the Supreme Court on three different occasions. Hundley (1975: 326) believes that “[t]he years of controversy over the waters of the river have persuaded many that an interstate treaty is a poor way of handling water distribution and that Congress should be entrusted with such complicated and politically sensitive questions.”

The Colorado River Compact requires a fixed minimum quantity of water to be delivered to the downstream states thereby placing the risk of natural variation in supply of water on the upstream states (McCormick, 1994). The results of this allocation are unjust to the upstream states at times of drought when they must let the water run unused to downstream users. Under extreme conditions when rainfall is not enough, compliance with the compact can be impossible. The upstream states cannot deliver the required minimum even if they did not take a single drop of water from the river. DuMars (1990: 36) argues that compacts let the parties defer the difficult questions to get agreement in the areas where there is common ground and that the “Colorado River Compact provides a classic example of the intentional deferral of difficult problems.” The compact is still in effect in 2003.
Ohio River Valley Interstate Compact

Over the years raw sewage discharges and industrial wastes had degraded the water quality of the Ohio River and many of its tributaries to the degree that it was not suitable as a water supply source or for other uses. The impacts of the pollution were regional. The river crossed through many states carrying pollution originated in one to another. The complaints of public health officials and conservation organizations about the inadequacy of pollution prevention measures had no effect. In 1935 these groups and concerned citizens finally found an ally in the Cincinnati Chamber of Commerce which started to coordinate some agencies. These efforts bore fruit on June 30, 1948, with the signing of an interstate compact by the governors of eight states: Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia and West Virginia. By signing the compact the states pledged “faithful cooperation in the control of future pollution and the abatement of existing pollution from the rivers, streams and waters of the Ohio Valley” (Cleary, 1967: 83-84).

The compact established an interstate agency, the Ohio River Valley Water Sanitation Commission (ORSANCO). The mission of ORSANCO “is to prevent pollution originating in any state from injuriously affecting the various uses of interstate water” (Cleary, 1967: 236). This corporate body includes three commissioners from each state appointed by the Governor and three federal commissioners appointed by the President of the United States. Federal commissioners do not vote on matters relating to enforcement actions but they have equal power with the state commissioners on both the executive and engineering committees and in other formal business conduct. ORSANCO is responsible for an area covering 155,000 square miles. Vicory and Tennant (1995) state that the compact had not been changed in its 47-year history. The priority of ORSANCO in the early years was prevention of pollution from municipal wastewater discharges by requiring primary treatment. In 1970 this minimum standard was raised to secondary treatment for municipal wastewaters and equivalent treatment for industrial discharges.

The supporters of the compact expected it to provide a mechanism for accomplishing cooperatively what the states could not undertake independently. When evaluating the performance of ORSANCO Cleary (1967) saw general improvement in several stream quality characteristics compared to ten years earlier. Vicory and Tennant (1995) report significant improvement in the water quality of the Ohio River as a result of enforcement of these standards.
In 1963 the program received the American Society of Civil Engineers’ annual outstanding achievement award for being “the most effective large-scale water pollution abatement program ever undertaken in the western Hemisphere” (Cleary, 1967: 283). However, Cleary did not find this improvement sufficient. Among the constraints upon performance Cleary cites limitations of state budgets and staff that can be dedicated to ORSANCO and the difficulty of reconciliation of multiple interests. He describes the challenge faced by the state commissioners as “on the one hand, to avoid intrusion on state prerogatives and, on the other, to encourage a broadening of ORSANCO services to strengthen efforts for the attainment of regional objectives” (1967: 235).

Cleary (1967) states that ORSANCO has authority to enforce compliance with its provisions. However, Ingram (1973) reports that within the first eighteen years of the compact this enforcement power was used only six times because this requires not only a majority of the commissioners from a majority of the member states to agree, but also agreement of the majority of the commissioners from the state from which the pollution originates. Ingram (1973: 16) concluded that as a result “[e]nforcement against water pollution in the Ohio Valley under ORSANCO lags behind the rest of the nation” and this “strategy of deference to states and the private industrial interests they represent limits the achievements of the compact.” On the other hand, Vicory and Tennant (1995) argue that enforcement powers of ORSANCO have been used infrequently because there was no need, in other words, the states were effective in applying the commission’s adopted standards. Adler (1995) states that ORSANCO has little regulatory authority and instead provides interstate coordination and cooperation. ORSANCO is still in operation in 2003.

vi. River Basin Commissions

The terminology used for regional agencies and commissions often creates confusion. One of the instances of this can be seen in the case of river basin commissions (RBC). There are different types of agencies with different organizational structure, authority and responsibilities under the same name. Following is an overview of the Title II RBCs and federal-interstate compact RBCs.

Title II River Basin Commissions

The 1945 federal Interagency River Basin Committee program encouraged the creation of informal, voluntary interagency committees (Viessman and Welty, 1985). Missouri, Columbia and Pacific Southwest interagency committees were created through a Washington-level
coordinator, the Federal Interagency River Basin Committee, in 1945, 1946 and 1948 respectively. The Arkansas-White-Red Basin and the New England-New York area interagency committees were created by a presidential directive in 1950 (Derthick, 1974). These committees had little power, no statutory authority, no executive leadership. Their major accomplishment was providing a forum for communication between state, federal and local government agencies. The operating agencies continued to do the planning while the committees assembled information on the basins and tried to reconcile differences when agency development proposals were incompatible. They operated by consensus, which inhibited decision. Among these, the Arkansas-White-Red Basins Inter-Agency Committee (USDA Natural Resources Conservation Service, ND) and the Pacific Southwest Inter-Agency Committee are still in operation (Frisch and Chaney, 1981).

The ineffectiveness of these federal interagency committees in coordinating planning for the major river basins prompted public officials to search for a new organizational form to replace them in the late 1950s (Derthick, 1974). As a result, Title II of the Water Resources Planning Act of 1965 authorized the creation of federal-state commissions for river basin planning as a standard form. Three of the existing River Basin Committees - Missouri, Columbia Basin, and the New England-New York area interagency committees - were transformed into the Missouri, Pacific Northwest, and New England River Basin Commissions (Frisch and Chaney, 1981).

The RBCs included a presidentially appointed chairman who would appoint and supervise the commission’s staff (Derthick, 1974) and a vice chairman selected by the basin states (Kenney, 1995). Each state that had land in the basin and each federal agency with an interest in the river basin was entitled to membership (Viessman and Welty, 1985). State representatives were usually governors or their appointees. Each member had one vote, and most commissions made decisions by consensus. Funding for the commissions came from both federal and state sources (Kenney, 1995).

By 1972, there were seven Title II RBCs covering thirty-two states. The commissions for the Pacific Northwest Rivers, Great Lakes, Souris-Red-Rainy, and New England were formed in 1967, one for the Ohio River was established in 1971 and two for the Upper Mississippi River and the Missouri in 1972 (Derthick, 1974). The Souris-Red-Rainy RBC later elected to become part of the Upper Mississippi RBC leaving only six commissions (Frisch and Chaney, 1981).
Ingram (1973) states that neither the federal interagency coordinating committees nor the river basin commissions that replaced some of these succeeded. The effectiveness of the RBCs was found to be limited because they lacked the necessary base of interested support (Derthick, 1974); adequate budget (Viessman and Welty, 1985; Adler, 1995); adequate commitment to implementation of the basin plans (Adler, 1995); and management, operating or enforcement authority (Derthick, 1974; Viessman and Welty, 1985). They had the power only to prepare coordinated plans and the plans they produced did not bind anyone to anything. They had no veto power on actions inconsistent with their plans (Derthick, 1974). The state and local governments and federal agencies were reluctant to cede authority to RBCs (Adler, 1995). In addition, the RBCs had problems of coordination, and the necessity to act through consensus limited their effectiveness (Viessman and Welty, 1985). Title II RBCs were abolished in 1981 by presidential order (Kenney, 1995). Among the reasons given were nonaccomplishment, lack of interest, and not needed (Frisch and Chaney, 1981).

Federal-Interstate Compact River Basin Commissions

A 1972 National Water Commission report concludes that the federal-interstate compact commission is the preferred institutional arrangement for water resources planning and management in multi-state regions (Derthick, 1974). However, because a compact between the federal government and the states is more complex and politically divisive than interstate compact processes, only two such commissions exist: the Delaware River Basin Commission (DRBC) and the Susquehanna River Basin Commission (SRBC) (Delaware River Basin Commission, 2003; Susquehanna River Basin Commission, ND). Attempts to establish similar organizations failed in the Missouri and New England Basins (Kenney, 1995).

The two federal-interstate river basin commissions are governed by executive committees of state governors or their appointees and federal representatives appointed by the president. Most major decisions are reached through unanimity (Kenney, 1995). The commissioners serve as the Board of Directors and establish policy, budget, annual and long term program direction for the Commission staff. Public participation is ensured by requiring any project, regulation, standard, or policy to be reviewed in an open hearing process before it is adopted by the Commission (Hansler, 1980).

Kneese and Bower (1968) related many of the problems in the Delaware basin to the great variability in flow of the river, highly developed flood plains, and heavy water demands for
municipal and industrial use as well as waste disposal. In 1961 the states of Delaware, New Jersey, New York and Pennsylvania and the United States federal government formed the Delaware River Basin Commission with an interstate compact to negotiate their differences in water allocation and to develop the river. The compact gives the DRBC broad operating, management and regulatory powers “to encourage and provide for the planning, conservation, utilization, development, management and control of the water resources of the basin” (Derthick, 1974: 15).

The DRBC is responsible for maintaining an up-to-date basin-wide comprehensive plan. All programs undertaken by federal, state and local government agencies and private organizations must be consistent with the comprehensive plan (Fox, 1964). The commission’s broad powers include the power of interstate water transfers between member states and approving or disapproving specific water projects within the states (McCormick, 1994). Derthick (1974) believes that the DRBC’s actual functions have fallen far short of its formal powers. She argues that even though the commission has authority over everything but navigation control, its activity has been limited and selective. She explains this by the representative nature of the commission which necessitates the member governments to concur with its actions and these governments are not amenable to being displaced. Derthick (1974: 183) states that “[a]lthough the DRBC has comprehensive authority to act, the compact explicitly protects the authority of federal, state, and local agencies to plan, construct and maintain projects and facilities. As an instrument of action, the DRBC, because it is so dependent on member governments, is ill conceived.” In addition, the DRBC does not have an independent source of revenue and is dependent upon the contributions of the member governments. Lack of a federal commitment to the organization has been another handicap. Derthick (1974: 183) concludes that the DRBC’s organizational characteristics that inhibit its development and regulatory functions do not interfere with its management functions which are more technical, less costly and not as jealously protected by an existing federal or state agency. She also points to the lack of a widely shared sense of regional interest and support in the DRBC.

The Susquehanna River Basin Commission, modeled after the DRBC (Derthick, 1974), was created in 1970 between the state governments of Maryland, New York and Pennsylvania, and the federal government by a federal-interstate compact that runs for 100 years (Bielo, 1984). The SRBC is responsible for planning the ground and surface water resources of the
Susquehanna River basin. It has the same planning, implementation and operation powers as the DRBC (McCormick, 1994); has strong regulatory management and development authority. It also provides a forum for discussion and action on interstate concerns regarding water and related natural resources of the basin (Bielo, 1984). The authority of the commission to impose water-use restrictions have been challenged in court by the city of Baltimore (Arrandale, 1999).

vii. Nebraska Natural Resource Districts

In the area of water resources management fragmented jurisdictions and lack of authority of some governmental units over the problem area have led to the consolidation of organizations. New authorities with capabilities for managing some aspects of water resources over an intergovernmental region emerged (Viessman and Welty, 1985). These and other regional agencies were created to address problems crossing state lines, such as river valley development or major port facilities (Alexander, 1992).

In 1969 there were about 500 special-purpose entities of fifteen different types in Nebraska related to water resources management. Viessman and Welty (1985: 70) state that this resulted in “narrowly focused organizations, overlapping responsibilities, duplication of services and taxation, and limited ability to cope with problems encompassing more than one jurisdiction.” The state legislature consolidated these numerous water-related special districts (including the soil conservation districts) and created the Natural Resource Districts (NRD) in 1969 with the Natural Resources District Act (Viessman and Welty, 1985). However, because of opposition, conflicts and misunderstanding the districts did not start operation until July 1, 1972. The legislation also provided that no additional water-related districts could be formed after the NRDs began operation (Kennedy and Cook, 1980).

The resulting 24 NRDs cover the entire state and have much greater capacity than their predecessors (Viessman and Welty, 1985). Stephenson (1996) points out that the NRDs are multi-purpose resource districts with wide natural management responsibilities ranging from soil and water conservation, flood and soil erosion control, drainage, rural water supply, recreation, forestry and range management, and wildlife habitat management. The districts are defined by watershed boundaries and have taxation capabilities (Ferguson and Moravek, 1990). They are governed by a locally elected board of directors and employ a manager and a full-time professional staff running day-to-day operations (Stephenson, 1996).
New legislation passed in 1986 enabled the districts to establish groundwater management areas to reduce agricultural impacts on groundwater quality; impose regulations to address water quality concerns; and increase taxation levies within the boundaries of the groundwater management areas for administration of the program (Ferguson and Moravek, 1990). The NRDs are still in existence.

Of the more than 500 previous districts only about 300 were merged to form NRDs or abolished, but still many federal, state and local agencies share authority with the NRDs. After the creation of the NRDs the remaining districts were encouraged to cooperate with the NRDs. Some powerful ones among them create problems for the NRDs (Viessman and Welty, 1985). Among the weaknesses of the NRDs Fischer (1981: 453) also includes the fact that the authorities and responsibilities of other units of government at the state and local levels “duplicate, overlap, or in some cases preempt those of the NRDs and the Natural Resources Commission” which has supervisory control over the NRDs.

Fischer (1981) identifies the source of the other weakness as the coincidence of the boundaries of the NRDs with those of the watersheds. He argues that no single NRD encompasses an entire watershed, but what is more important is that watershed boundaries are identified based on surface water and the NRDs have little control over surface water. In addition, these boundaries result in odd shaped and elongated districts that require long travel distances to the district office. Fischer (1981) believes that relying on watershed boundaries prevented using another base that would better facilitate district functions. He argues that if the natural resource districts conformed to the organizational structure of the existing political and public service system by using aggregations of counties as the basis of their boundaries the NRDs would have functioned more efficiently and would have been able to use the natural resource data reported on a county basis.

Longo and Miewald (1989: 761, 751, 752) say that “[t]he NRDs have been most disappointing as political entities” and criticize the districts for being an example of “abdication of legislative responsibility” and an attempt by the legislature to make another level of government to decide the issue, so that “that level can be blamed.” They further argue that “the NRD was destined to preserve the status quo while giving the appearance of movement toward the solution of pressing water problems” (p.757). In addition, the districts created great potential for litigation. The authors state that the NRD legislation did not provide adequate funding for
addressing the needs of a comprehensive water plan. Ashley and Smith (1999) identify the most often levied criticism against the NRDs to be limitations on financial and professional capabilities which restrict the ability of the districts to effectively manage the resources.

Longo and Miewald (1989) note that the authority of the NRDs is discretionary, not mandatory. This results in inaction of NRDs when faced with problems that have serious political risks. They argue that the districts lack democratic participation as they have not been perceived as general purpose units of government which reflect the political aspirations of a wide diversity of interests. On the contrary, Longo and Miewald (1989: 762) criticize them for being a “closed club of irrigators” in which sometimes a farmer’s vote was worth ten times the vote of an urban voter until 1988 at which time a new act remedied somewhat the district malapportionment of the tax dollars. Ashley and Smith (1999: 164-165) also note the political power of agriculture stating the feelings of many that “NRDs are largely controlled by rural agricultural interests.”

viii. Florida Water Management Districts

Following a disastrous widespread flood surrounding the Tampa Bay metro region (Allee et al., 1981), the Southwest Florida Flood Control District was created in 1961 for regional flood control and water management (Viessman and Welty, 1985) consolidating the water management and coordination functions in the area (Light and Dineen, 1994).

The 1972 Water Resources Act of the State of Florida, which established regional water management districts based on hydrological boundaries, was prompted by a water crisis in south Florida due to the drought in 1970-1971 (Light et al., 1995). It transformed the Southwest Florida Flood Control District, which had no authority over consumptive water use, surface water installations, water quality and wetlands, into a comprehensive regional water management entity: Southwest Florida Water Management District (SWFWMD). Similarly the Central and Southern Florida Flood Control District was succeeded by the South Florida Water Management District (SFWMD) (Light and Dineen, 1994). The act created a total of five similar districts which cover the entire state of Florida (Viessman and Welty, 1985). In addition to surface and ground water management and water allocation, the districts have jurisdiction over water quality and environmental protection as well.

The five water management districts vary in size, resources and programs: SFWMD, whose region encompasses the Everglades, is the largest with 17,930 square miles and the
Suwannee River Water Management District is the smallest with 7,640 square miles. The Northwest Florida, Southwest Florida, and St. Johns River Water Management Districts are in between (Senate Select Committee on Water Management Districts, 1984). In addition to being the largest in size, SFWMD has the largest population and is the wealthiest, but it also has the most severe water quality and quantity problems.

The districts’ responsibilities include flood control projects, groundwater regulation, issuance of consumptive use permits, and management and storage of surface water. The districts are each governed by an unsalaried board of nine citizens appointed by the governor and confirmed by the State Senate. This insulates them from political pressures. Among their strengths is the taxing authority of the board. Their weaknesses are concentrated on the lack of authority in several areas: to plan and implement projects unless invited to do so; to regulate water quality; and to construct, operate or maintain sewage treatment facilities (Viessman and Welty, 1985).

Because of its size and relative importance for encompassing the Everglades SFWMD is studied extensively. The problems in the Everglades involve a diversity of interests. Light et al. (1995) state that the SFWMD failed to balance the competing objectives of the powerful water interests in the Everglades because its breadth of authority and the scope of responsibilities were not enough to overcome the fundamental lack of shared values among the interest groups. The SFWMD has no authority in the Everglades National Park. Tim Searchinger of the Environmental Defense Fund (Musgrove, 1992) criticized the district for operations for the benefit of agriculture and meeting the needs of the environment only if convenient.

In spite of its innovativeness for its time, Light et al. (1995) believe that the SFWMD lacks the capacity to steer the entire region. In addition, they note a fundamental mistrust among levels of government. Musgrove (1992) notes that scientific consensus, if achieved, does not necessarily lead to political consensus or action and stresses the necessity of agreement among state and federal officials.

Light et al. (1995) point out that even though the SFWMD has very broad state-level authority there are gaps in the scope and purpose. They identify the lack of interaction and connectivity among institutions as the most apparent institutional barrier to enhanced ecosystem viability. They propose to use interagency collaboration as a bridge to overcome the barrier of not having an institution with systemwide perspective or authority in the Everglades for
management of water resources. Holling et al. (1994) argue that holistic solutions are necessary for ecosystem restoration in the Everglades. They emphasize that this can only be achieved through collaboration, communication and integration among policymakers, business and environmental interests, technical experts and the public who will be affected by the policies.

ix. Great Lakes Water Quality Agreements

The 1972 and 1978 Great Lakes Water Quality Agreements (GLWQA) are widely recognized as among the world’s pioneering international instruments designed to foster intergovernmental cooperation to control water pollution (National Research Council of the United States and the Royal Society of Canada, 1985). Various government institutions at the federal, provincial, and state level cooperate to implement the 1978 Agreement. In addition to the many hundreds of municipal-level entities, the 12 jurisdictions concerned include eight states in the U.S., two provinces in Canada and the two federal governments. With the creation of governing institutions at hierarchical levels below the state or province but above municipalities over the years most citizens of the basin live under four levels of government (Francis and Regier, 1995). The number of agencies with jurisdiction over the area is very large. At one time 132 governmental entities had responsibilities concerning water quality for Ohio’s portion of Lake Erie and more than 650 entities had jurisdiction over the Great Lakes shorelines.

A 1978 report of the Great Lakes Research Advisory Board (National Research Council of the United States and the Royal Society of Canada, 1985), one of the joint institutions created to implement the agreement, concluded that the absence of an ecosystem approach in the 1972 Agreement had constrained the ability of the parties and the Great Lakes Fishery Commission to attain the desired water quality goals. They suggested that adoption of the ecosystem approach would relieve the constraints. The Committee to Review the GLWQA (National Research Council of the United States and the Royal Society of Canada, 1985) stated that improving and sustaining Great Lakes water quality is intimately related to how the linkages within and outside the basin ecosystem are viewed. They argued that if the institutions and actions are not also linked to the characteristics of the basin ecosystem, the technical knowledge serves only to identify continuing problems.

The 1978 Agreement was the first formal recognition of the need for an ecosystem approach to management and study of the Great Lakes. However, it did not specify how the concept and approach would be applied in an operational sense. The emphasis on ecosystem
management continued in further revisions of the agreement. The Great Lakes Charter signed in 1985 by the governors and premiers of the Great Lakes states and provinces stated that:

The water resources of the basin transcend political boundaries within the basin, and should be recognized and treated as a single hydrologic system. In managing the Great Lakes basin waters, the natural resources and ecosystem of the basin should be considered a unified whole. (National Research Council of the United States and the Royal Society of Canada, 1985: 31)

In spite of the agreements the recovery of the lakes has been slow and was still incomplete as of 1985. One of the reasons cited by the Committee was the lack of a central authority and a central data system. They believed that an appropriate comprehensive information system is an important component for implementing an ecosystem approach. The parties’ slow progress in reducing non-point phosphorus loading was attributed to the large number of institutions involved in making and enforcing regulations.

The Committee reported that more often than not, state, federal, and provincial agencies appear to carry out their programs with little effective interagency coordination even in the cases where coordination was explicitly intended. According to the Great Lakes Governors Task Force on Water Diversion and Great Lakes Institutions the problem facing policy-makers in the Great Lakes region was the lack of an “integrated institutional arrangement” or even an “administrative means to better coordinate the existing arrangement” for addressing the Great Lakes resource management issues. The Task Force stated that this problem resulted in a “failure to set resource management concerns in a regional, or basin-wide context” (National Research Council of the United States and the Royal Society of Canada, 1985: 100).

The International Joint Commission (IJC) was established by the 1909 Boundary Waters Treaty between the United States and Canada. The 1972 GLWQA made the IJC responsible for “collating, collecting, analyzing, and distributing data; providing advice and recommendations; giving assistance in the coordination of joint activities relating to the implementation of the Agreement; investigating issues relevant to the Great Lakes basin ecosystem; and providing a public information service” (National Research Council of the United States and the Royal Society of Canada, 1985: 79). The IJC Water Quality Board has identified forty-three areas of concern (AOC) across the Great Lakes Basin since 1973. In 1985, as a result of minimal improvement in water quality in the AOCs, the IJC Water Quality Board recommended preparation of Remedial Action Plans (RAP) for each site (MacKenzie, 1996).
The effectiveness of the GLWQA was limited until the addition of the RAP protocol in the 1987 amendments. However, it took some time for the RAP process to provide results. Francis and Regier (1995) report that by early 1992 only five RAPs had been completed to the satisfaction of an IJC review process. Therefore, the following criticisms of GLWQA refer to the agreement before the implementation of this protocol. The results of this protocol are discussed in Section I.4 of Chapter 3.

Caldwell (1993) questions the effectiveness of the Great Lakes Water Quality Agreements and concludes that as of 1993 the cleansing, rehabilitation and protection of the lakes remained unfinished. He states that the “official ambiguity on transboundary environmental policies resulted in the tacit devolution of decision-making to subnational units of government” (1993: 19). He argues that the basin-wide coordination needs to be improved. Carroll (1993) points to the International Joint Commission’s narrow and tightly regulated mandate. LeMarquand (1993) attributes the weakness of the IJC to its dependence on governments and its limited mandate. Quinn (1993) states that Canada and the United States weakened the authority of the IJC in the 1978 and 1987 revisions of the original 1972 GLWQA and have taken back direct program responsibilities. Hartmann and Donahue (1990) believe that the lack of established forums for alternative dispute resolution processes that can foster mutual learning among interest groups is a critical shortcoming in the present institutional setting of the Great Lakes.

x. Conclusions

The cases above demonstrate that most of the factors that lead to the failure of the initiatives are outcomes of lack of collaboration and can be prevented through collaboration: exclusion of some levels of government, limited mandate, lack of authority and capacity, problems of coordination, dependence on other powerful governments, mistrust among levels of government, lack of a central data system, and lack of established forums for alternative dispute resolution processes.

It is obvious from the above examples that lack of collaboration was the major factor that contributed to the failure of regional planning initiatives and collaboration is necessary to make regional planning work. The next section examines the motives for collaboration for natural resource management.
2. Why Collaborate for Regional Planning and Natural Resource Management?

As a form of planned decision making, collaboration not only yields better than laissez faire outcomes in general, but also it is absolutely crucial for effective natural resource management and planning. Wooten (1945: 7-9) argues that if priorities are not determined consciously and deliberately as part of a plan and left to settle themselves through the market the outcome will be “the unpremeditated result of the decisions of thousands of people each of whom is concerned only with his own particular part of the whole” and “the uncoordinated small-scale plans of individuals generally add up to a result which is completely unplanned.” She argues that conscious collective decisions give us more opportunities to achieve the desired outcomes. Oakerson (1999) calls this phenomenon the “tyranny of small decisions”. In an intergovernmental context even though the scale of the problem is metropolitan-wide most land-use regulation occurs in smaller municipal jurisdictions. As a result municipalities in the aggregate make decisions that affect everyone in the metropolis adversely over the long run. The same holds true for natural resource management.

Alexander (1992: 121) argues that individual decisions and actions planned and undertaken in the interests of a specific individual, household or firm “can be unwittingly and systematically destructive” when aggregated. Kelly and Becker (2000: 288) point out that the competition of local governments in a metropolitan area seems to make sense from each local government’s perspective “but do[es] not serve the region well.”

Natural resource management is faced with the same alternatives. The decisions can be made either by each agency or government entity without regard to others or they can be made collaboratively. Since the interests of these entities are often contradictory they will prevent each other from achieving their desires if each one of them acts individually following their own interests.

i. Contingencies of Natural Resource Management

In addition to the fact that planned outcomes in general are better, natural resource management has contingencies that make competition ineffective and collaboration necessary. Among these contingencies where collaboration provides better outcomes are non-market situations, transboundary problems, multi-party and multi-issue situations.
Non-market situations include problems that are not amenable to efficient competitive market solutions due to social concerns and thus for which competition does not work. The situations that result in market failure include externalities, public goods, and common pool resources.

Externalities are negative or positive spillovers of an action to third parties. The Advisory Commission on Intergovernmental Relations (Kenyon, 1991) examines whether competition is harmful or beneficial in the federal system and concludes that interjurisdictional competition is not always beneficial or always harmful. Certain types of competition have beneficial spillovers for other jurisdictions while some have harmful spillovers. Oates and Schwab (1991) state that competition among firms need not always lead to efficiency because private markets sometimes fail. If production and consumption generate negative externalities, competition in the private sector does not lead to efficiency.

Roberts (1971: 99) declares that “If the externality is harmful, and if the process of correcting it is characterized by economies of scale, the case for unified administrative action is strengthened.” He gives water pollution as an example of this kind of a problem and proposes to combine the responsibility for water pollution control activities and other water-related functions of an interdependent river basin into a single regional management agency. Many others have suggested such an approach (see for example, Kneese and Bower, 1968 and Martin, et al., 1960). Derthick (1974) believes that adjustment of jurisdictional boundaries is necessary to encompass externalities. She proposes to achieve this through regional organizations for rivers. But it has been demonstrated above that regional organizations have not been fully successful in solving natural resource problems. The alternative is through collaboration.

Common pool/property resources are characterized by two properties: rival consumption, meaning that they are exhaustable: the consumption of the good by one person reduces the amount available for others; and non-excludability: because the good or service is indivisible it is impossible or too costly to exclude users once the good or service is provided. Fisheries, hunting grounds, groundwater basins, oil deposits, and the waste assimilative capacity of a stream or estuary are examples of common-pool resources (Ortolano, 1997). Hardin (1968) argues that the actions of individuals acting rationally and following their own interests will result in a tragedy in management/use of the commons. Haefele (1973) states that the fact that common property resources need governance has been agreed upon since the time of Aristotle.
(Jowett, 1943: 83) who exclaimed: “For that which is common to the greatest number has the least care bestowed upon it.” Ostrom et al. (1994: 5) claim that:

When individuals withdraw scarce resource units from the same common-pool resource, when they cannot communicate and establish agreed-upon rules and strategies, and when no other authority has established and enforced effective rules, predictions of suboptimal use of the resource are likely to be correct. Users will overappropriate, individuals will defect on one another, and potential collective benefits will not be achieved. Too many straws will be in the teapot.

This means that in the case of common-pool resources competition results in disaster and collaboration is necessary for efficient long-term management.

Transboundary problems cut across existing organizational (spatial, resource and authority) boundaries and therefore organizational goals cannot be reached by any single agency. Lee (1995) believes that fragmentation of jurisdictions promotes abuse of the environment as individual organizations’ purposes are incompatible with sustainable use of the whole. For effective management of transboundary natural resources consistent environmental goals and standards are necessary (Adler, 1995). This could be achieved by collaboration among agencies.

Situations which involve multiple parties and multiple issues are not resolved effectively by the market either. Transboundary problems involve multiple parties by their nature. Water management organizations provide an example: for years the complementarity among them was not acknowledged and this fostered competition among them (Allee et al., 1981). Adler (1995) shows that even critics of a single unifying agency accept that multiple agencies would be more effective if they collaborated and shared an understanding and a system.

Grumbine (1994) observes that the current ecosystem management relationships are competitive instead of cooperative between all four major groups of actors: scientists, managers, policymakers, and citizens. He traces the source of competition to a mix of divergent legal mandates, agency history, organizational structure, and conflicting professional and personal norms. MacKenzie (1996) mentions the widening gap in academia which inhibits the diffusion of new ideas and information across the disciplines and the lack of incentives for interdisciplinary work in government and academia that creates an obstacle for cooperative research across disciplines. Griffin (1999) argues that some interest groups may find a collaborative approach inappropriate as it will give the appearance of compromise and this may
cause a loss of constituent support. Environmental groups such as the Sierra Club may prefer the adversarial approach as a result.

Multiple parties go hand in hand with multiple issues. Competition also originates from the inevitable conflicts between the goals, missions, and methods of multiple agencies. This competition and conflict results in a piecemeal approach to watershed protection and has failed to solve the problems so far (Adler, 1995).

The contingencies of non-market situations, transboundary problems, multiple parties and issues are in existence and relevant for natural resource management. Clearly, effective and efficient natural resource management requires collaboration among stakeholders.

ii. Collaboration as the Only Effective Way for Natural Resource Management

Taylor (1990) notes the necessity of coordinated decision-making for natural resource management on a regional scale. He emphasizes the interdependency between the states which have the resource management responsibility and expertise necessary for management and the local jurisdictions that are in charge of making land use decisions that significantly affect the resources.

Water resources provide a perfect example of the need for collaboration in regional planning efforts since watersheds often cross multiple political boundaries which increase the complexity of decision making and the number of governmental units involved (Griffin, 1999; MacKenzie, 1996). In addition, a number of federal agencies have major interests and responsibilities in the water resources field, but each agency is primarily concerned with certain objectives and purposes of water resources development and less concerned with others (Fox, 1964). In his study of decision-making in water management Deyle (1995: 388) provides a synthesis of literature on fragmentation of public institutional jurisdiction over water resources (1) among different levels of the federal system of government in the United States, (2) among political jurisdictions within the state and local levels of government, (3) between the physical dimensions of the resource (surface water, ground water, diffuse water), (4) between management functions (water use, water quality, drainage and flooding), and (5) among different water use sectors (agricultural, industrial, residential, recreation, ecosystem management).

This fragmentation of jurisdiction makes effective regional planning impossible outside of collaboration for two reasons: the interconnectedness of water resources and the inability of governments to coordinate their actions. Water-based systems have feedback processes which
result in management actions taken in one part of the system having consequences for the operation of another part (Downs et al., 1991). To eliminate the negative consequences of this, Downs et al. (1991) suggest the necessity of an integrated approach that recognizes water resources as part of a physical system that involves the interaction of hydrological, geomorphological, and ecological components.

Viessman (1982) identifies the inability of federal and state agencies to effectively coordinate their programs as one of the institutional problems of national water policy. He proposes (1988) that good water management requires recognizing that regional rather than local solutions to problems may sometimes be required. He points out that many of the political subdivisions created years ago are now too small to deal comprehensively with resource management problems that transcend their boundaries and locally rooted problems have regional dimensions. He argues that proper management of a system is impossible if only one of its parts can be manipulated and without this needed regional focus, many local problems may be expected to reach crisis proportions.

Ingram (1973) notes the necessity of river basins to be managed as a whole and particularly focuses on water management organizations. Cobourn (1999) identifies collaboration as one of the defining characteristics of integrated watershed management. He argues that since watersheds cross jurisdictions, collaboration is needed between all levels of government for integrated watershed management to work.

Another area of natural resource management that requires collaboration to be successful is ecosystem management. Collaborative decision making is one of the agreed upon basic themes of ecosystem management (Slocombe, 1993; Grumbine, 1994; and U.S. General Accounting Office, 1994). Slocombe (1993) argues that the environment needs to be managed in whole ecological or landscape units based on integrative biological, physical, and/or socioeconomic assessments. Grumbine (1994) agrees on the need to define ecological boundaries but points out that using ecological boundaries requires working across administrative/political boundaries and this necessitates cooperation between federal, state and local management agencies as well as private parties. Grumbine (1994) states that managers need to learn to work together and integrate conflicting legal mandates and management goals.

Another conflict is between protecting natural resources and sustaining long-term natural resource commodity production and uses. For ecosystem management to be successful these two
goals of protecting ecological integrity and providing goods and services for humans must be reconciled. The U.S. General Accounting Office report on ecosystem management (1994) concludes that collaboration and consensus-building among federal and nonfederal parties is required to bring this reconciliation. Ruhl (1999: 520) argues that the most effective policy approach for ecosystem management is true cooperative federalism “in which state and local authorities ... are genuinely empowered to shape the regulatory landscape for ecosystems within their territories and to cooperate with other state and local authorities in the inter-regional ecosystem context.” He further argues that the transboundary nature of ecosystems suggests the absolute necessity of federal involvement.

iii. Conclusions

It is clear from the above analysis that collaboration is the only way for effective natural resource management. Natural resources have some contingencies that result in ineffective management under competitive situations. The independent actions of parties pursuing their own interests result in negative consequences for the whole. Transboundary problems coupled with fragmented jurisdictional structures create an environment in which no action can be performed efficiently or effectively. Only through collaboration among agencies can better results for everyone concerned be achieved.

The next chapter of this dissertation provides a literature review on collaboration in natural resource management. It first reviews motives for collaboration rather than competition and the theoretical background on determining success in collaborations. The third chapter reviews a series of collaborative ecosystem management case studies. Based on these cases, an initial list of determinants of success is formed to be used in further research. The fourth chapter presents the hypothesis to be tested and details the methodology that is used in the research. The fifth chapter presents the results of the quantitative analysis of the determinants of success for interorganizational collaboration while the sixth examines survey respondents’ views on how to measure success and what particular factors made their initiative successful. The last chapter summarizes the findings and provides conclusions.
CHAPTER 2
COLLABORATION AND SUCCESS

Following is an overview of the literature on collaborative decision making. The first section provides an overview of the empirical findings of the organization theory and collaboration literature focusing on the question of why organizations and government agencies choose to collaborate rather than compete. Then the measures of success of a collaboration and the factors that influence the success of a collaboration are presented.

I. Why Organizations Collaborate Rather Than Compete

The organization theory literature identifies the reasons why organizations collaborate. A review of this literature provides the following factors that motivate interorganizational collaboration: pursuing common or mutually beneficial goals and interests; reducing environmental uncertainty; mutual interdependence; legitimacy; fragmented jurisdictional structure; meeting necessary legal or regulatory requirements; and resource scarcity. This section provides a summary of these motivators, the trade-offs between collaboration and competition, and the specific motives for collaboration in natural resource management.

Oliver (1990) states that each of the determinants may be a separate and sufficient cause for collaboration. However, the decision to collaborate with other organizations is usually based on multiple contingencies. Some of the factors that necessitate collaboration, such as mutual interdependence and resource scarcity, are interrelated and hard to distinguish.

1. Organizational Goals

While examining motives for collaboration pursuing common or mutually beneficial goals and interests comes up immediately. Schermerhorn (1975) identifies organizational goals as a motivator influencing interorganizational collaboration. He hypothesizes that when
organizations recognize some mutual need or purpose, and organizational domains are not sensitive issues, interorganizational collaboration becomes more likely. Oliver (1990) agrees. Based on an integration of the interorganizational relations literature from 1960 to 1990, she determines reciprocity as a critical contingency that motivates organizations to collaborate in order to pursue common or mutually beneficial goals and interests.

The reciprocity model of interorganizational relations is theoretically rooted in exchange theory. One of the assumptions of this model is that collaboration “typically will be characterized by balance, harmony, equity, and mutual support, rather than by coercion, conflict and domination ... potential partners to an exchange will anticipate that the benefits of forming a linkage far exceed the disadvantages, particularly the loss of decision-making latitude and the cost of managing the linkage” (Oliver, 1990: 245).

2. Environmental Uncertainty

Another factor mentioned by most authors as motivating collaboration is the desire to reduce environmental uncertainty (Schoorman et al., 1981; Provan, 1982; Gray, 1985; Weiss, 1987; Borys and Jemison, 1989). Environmental uncertainty may be caused by resource dependency relationships (Provan, 1982; Borys and Jemison, 1989) or by task environments which are defined by Mulford and Rogers (1982: 10) as “the organizations, groups and persons with which an organization interacts directly.” Oliver (1990) describes this as the stability contingency. Collaboration helps organizations forestall, forecast, or absorb uncertainty and achieve an orderly, reliable pattern of resource flows and exchanges. In the private sector, collaborating can reduce environmental uncertainty in four ways: horizontal coordination linking competitors; vertical coordination linking an organization with suppliers of inputs or receivers of outputs; expertise; and enhanced reputation (Schoorman et al., 1981).

3. Mutual Interdependence

Collaboration as a way of responding to environmental uncertainty has been discussed above. Mulford and Rogers (1982) suggest that increased interdependencies lead to a greater need for intra- and interorganizational collaboration. Gray (1989:27-29) states that “Under turbulent conditions organizations become highly interdependent with others in unexpected but inconsequential ways ... Turbulence cannot be managed individually because disruptions and their causes cannot be adequately anticipated or averted by unilateral action ... Collaboration
offers an antidote to turbulence by building a collective capacity to reduce the unintended consequences ... [and] increase variety in [organizations’] repertoire of responses to environmental change.”

Owen (1998: 129) agrees that parties choose to collaborate because they realize the interdependence of their goals and that “one party cannot get what it wants without the support or action of the others. Underlying the process is the assumption that by working with the other parties to solve a jointly defined problem, each party will gain more than it could by relying on other methods of influencing public policy.” Gruber (1987) believes that to do their jobs well bureaucrats who work in interdependent environments need to collaborate with those officials whose work both affects and is affected by theirs.

Halpert (1982) finds support in the literature for the idea that awareness by leaders of at least partial interdependence of their organizations is a necessary prerequisite for collaboration. In addition to having similar interests, organizations “must perceive the need for some type of immediate joint endeavor to fulfill an organizational goal” (Halpert, 1982: 57). Exchange theory identifies the mutual dependence created when private organizations in different sectors need goods and services from each other. The dependence upon each other may be for scarce resources (Alter and Hage, 1993) or for analytical information, such as simulation models and data bases that agencies have to share (Lee, 1995). Gray (1989) states that local, state, and federal agencies are dependent on each other for information, resources, and policy decisions, making it impossible for any agency to act unilaterally.

4. Legitimacy

Oliver’s (1990) legitimacy contingency posits that organizations enter an interorganizational relation to enhance organizational legitimacy, to justify their activities or outputs. This is the view of institutional theory. Organizations seek to increase their legitimacy to improve their reputation, image, prestige, or to conform with prevailing norms in their institutional environment. Weiss (1987) also believes that satisfying norms and values and obtaining political advantage are motives for public agencies to cooperate.

5. Fragmented Jurisdictional Structure

Rogers and Mulford (1982: 39) define fragmentation as “a division of responsibilities among multiple, separate agencies, each having a unique purpose, but lacking a coherent policy
or integrated direction.” They state that separation of powers in government resulted in a fragmented service system that became a barrier to solving social service and welfare problems. Fragmented jurisdictional structure results in fragmented funding and Rogers and Mulford note that this also works against an integrated, centrally-controlled system. Mulford and Rogers (1982) observe cooperation in cases where the acquisition of power is difficult. This often is a result of fragmented jurisdictional structures.

6. Meeting Necessary Legal or Regulatory Requirements

Organizations sometimes cooperate in order to meet necessary legal or regulatory requirements that are mandates from higher authorities (Weiss, 1987; Oliver, 1990). When a powerful extra-organizational force demands collaboration it is more likely to happen (Schermherhorn, 1975). Based on case studies of local school districts Weiss (1987: 109) concludes, however, that “legal mandates, standing alone without the reinforcement of political consensus, standard procedures, preexisting relationships, systematic enforcement or shared moral codes, may be too weak to overcome the obstacles to cooperation.”

Halpert (1982) argues that when agencies are mandated to collaborate they are caught in a Catch-22 situation in which they are particularly vulnerable to organizations that are more powerful in a hierarchical system - such as government. If they collaborate, they may lose their autonomy and create disturbance in their organization; if they do not, they may not survive because of their dependence upon society for legitimacy.

7. Resource Scarcity

There is agreement in the literature that resource scarcity will induce organizations to seek out or be receptive to interorganizational collaboration (Schermherhorn 1975; Weiss, 1987). Gruber (1987: 133) argues that agencies need cooperation “when they do not command all the resources necessary for the success of their technology.” Dispersion of control over absent resources makes cooperation necessary. Halpert (1982) deduces from a survey of the literature that the prime factor motivating interagency collaboration is the quest for survival by an organization. He argues that an organization will voluntarily collaborate when faced with the threat of resource loss among other things (i.e. autonomy, and task and power domains) as a result of prevailing market and environmental conditions. Another situation that prompts
organizations to collaborate for survival is to forestall or prevent future crises when organizations look for areas of expansion in terms of resources, power and task domains.

Oliver (1990) takes a different position with her *asymmetry* contingency and argues that resource scarcity might not motivate organizations to collaborate as expected. On the contrary, scarcity may prompt organizations to try to exert power, influence, or control over other organizations that control the required scarce resources. This power approach to collaboration states that one organization may be motivated to enter a collaboration with a financial institution to be able to control the capital resources and to have more power than the other organizations competing for financial resources in the same area.

### 8. Collaboration versus Competition

Bryson and Crosby (1992) argue that in the world of practice the choice between a competitive and a cooperative strategy is not straightforward. An organization may choose to compete in one situation and cooperate in another. They state that shared-power arrangements are not “either-or” but “both-and,” meaning that organizations which share power neither act as competitively as in pure competition, such as adversarial court proceedings, nor as cooperatively as they would in a merger of authority. According to the authors, while they move to a shared objective the organizations are in the happy middle of “friendly” bargaining which includes both competition and cooperation.

McGuire (1991) points out that game-theoretic models of competition between firms support the possibility of competition resulting in inefficient outcomes for the players. The major impetus behind choosing a cooperative strategy over a competitive one comes from the fact that the expected long-term gain from cooperation is greater than the short-term gain from competition. A competitive strategy may bring more gain in the short-run, but as a repeated game theoretical approach demonstrates, in the long-run, the competitive strategy will be penalized by playing a strategy of “tit-for-tat”. A *tit-for-tat multiperiod strategy* is defined as playing the cooperative alternative in the first play of the game and thereafter mimicking the other player’s previous choice (Miller, 1992; Alter and Hage, 1993). One player’s competitive move leads the others to respond and eventually this will lead to a kind of “Tragedy of the Commons” situation where everybody is worse off. Thus, in a game that is likely to be repeated enough times, it is better to cooperate if one’s opponent is cooperating. McGuire (1991) applies
the same game-theoretic model to interjurisdictional competition and shows that interjurisdictional competition may also result in zero-sum or negative-sum games. She finds that in some noncooperative solutions the competing jurisdictions are all worse off than collaborative solutions.

Mulford and Rogers (1982) argue that if organizations have sufficient power they may choose competitive strategies over cooperative strategies. They are more likely to prefer cooperative strategies if the acquisition of power is difficult.


Some of these ideas developed for private-sector interorganizational relationships apply to interagency collaboration for natural resource management as well. An important motive of collaboration for natural resource management is organizational goals. Endicott (1993) identifies a common vision and a shared goal as one of the attributes of partnership success for land conservation. She gives as examples the success of public/private partnership programs in the U.S. Fish and Wildlife Service’s (FWS) North American Waterfowl Management Program at the federal level and California’s State Coastal Conservancy at the state level and notes that these programs succeeded “because they set forth a clear, inspirational conservation vision for all to rally around” (Endicott, 1993: 9). One-quarter of the ecosystem management projects Yaffée et al. (1996) studied were started because of shared goals and interests among stakeholders. There was either recognition of opportunities for all to gain through joint action or that they faced common problems. Yaffée et al. (1996) conclude that an increased perception that the groups shared common ground motivated efforts at collaboration.

MacKenzie (1990) observes that resource management following political jurisdictions rather than natural boundaries in some cases results in competing uses between upstream and downstream communities. In the context of natural resource allocation, collaboration can take the form of horizontal coordination among competitors. For example, jurisdictions competing for a share of the use of a natural resource may collaborate. Collaboration would reduce uncertainty about the future actions of the competitors. Scientific uncertainty about environmental problems and their amelioration can also stimulate environmental partnerships (Michaels et al., 1999b). Michaels et al. (1999a) studied eleven partnerships in the New York State’s Adirondack Park
and found that nine of them were prompted by uncertainty situations such as a looming ecological threat, a pending sale of a critical parcel of land, or an anticipated influx of tourists.

Grigg (1999) shows that in problems that transcend boundaries among water, land, and environment there are interdependencies in nature and in the economic and social arenas. *Ecological interdependence* makes collaboration in management of natural resources an absolute necessity. The U.S. General Accounting Office report on ecosystem management (1994) emphasizes the interdependency of the plant and animal communities and their interaction with their physical environment, including soil, water and air, to form ecosystems that span federal and nonfederal lands. MacKenzie (1996) notes the interconnections among the natural elements within a watershed and explains how land, water, forests and wildlife exist in a complex symbiotic web. On the one hand, land use patterns and the type and density of ground cover affect water quality and quantity. In return, water quality and quantity affect land use, ground cover, and wildlife. Collaboration for shared expertise and exchange of information among organizations is also relevant to natural resource management since a *fragmented jurisdictional structure* makes agencies *interdependent* for information gathering and analysis.

Westley (1995) recognizes the need for collaboration and consensus as a result of *fragmented jurisdictional structures*. Stakeholders in ecosystem management cases represent highly fragmented groups whose interests concerning the ecosystem differ in substance and intensity. She states that no one organization, even in the case of the least jurisdictionally complex ecosystem, can solve the problems of ecosystem management unilaterally. Lee (1995) argues that organizations cooperate because the fragmentation of control over large ecosystems requires extensive social interaction to achieve a sustainable economy. Only in this way can they achieve negotiated shared agendas of finding and maintaining a balance among disparate and often noncomparable considerations, such as irrigation and tourism. Yaffee et al. (1996) give the Indiana Grand Kankakee Marsh Restoration Project as an example where no agency could single-handedly accomplish all the project’s goals. Their study findings show that generally, the larger the project area or number of stakeholders, the greater the likelihood of finding partnerships or other decision-making bodies. They also point out that the vast majority of these decision-making bodies cross agency and institution boundaries. Michaels et al. (1999b: 1) define ecostewardship partnerships as “initiatives to manage natural resources where no single entity has the jurisdiction and the capacity to do so on its own.”
Weiss (1987) lists *meeting necessary legal or regulatory requirements / mandates* among the factors that put pressure on public agencies to collaborate. The National Environmental Policy Act of 1969 requires the lead agency preparing an Environmental Impact Statement (EIS) to “solicit cooperation from other federal agencies that have jurisdiction by law or special expertise on any environmental issue that should be addressed in the EIS being prepared” (Law School WebTeam, 1999: 14a. A). Section 7 of the Endangered Species Act of 1973 requires interagency cooperation from all federal agencies for achieving the purposes of the Act (U.S. Fish & Wildlife Service, 2000).

Michaels et al. (1999b) state that the scale of ecosystem management dictates cooperation among property owners and other stakeholders pointing out that it is not common for a landowner to have all the resources necessary for sustained stewardship. As the size of the ecosystem in concern increases, the amount of resources required for protection and management increases as well. Organizations, especially public agencies, have limited funding and many responsibilities, and they face the problem of resource scarcity. Especially natural resource management organizations are frequently faced with cut-backs in funding. Thus, *resource scarcity* of organizations is one of the factors that result in a need for collaboration in natural resource management.

This study attempts to find ways that will increase the chances that these much needed collaborations will work. Now that we know why organizations need to collaborate, the next section examines the factors that make these collaborations successful.

II. Successful Collaboration

This section examines the theoretical literature for two purposes: to operationalize the criteria of collaboration success and to identify the determinants of success in interorganizational collaboration. Once this is done the cases can be evaluated in terms of success and then compared to see whether they have the determinants of success.

1. How Do We Define and Measure Success?

In the business world, success is easier to measure by economic indices such as increased profitability (Hagedoorn and Schakenraad, 1994). This option is not open to natural resource management, because the management goal for a natural resource is usually not profitability and
in most instances natural resource management is done within a public context even though it may involve private-sector organizations.

Michaels et al. (1997) point to the logistical and pragmatic bias in the literature when defining success: if collaborations survive or reduce conflict they are seen as successful. Innes and Booher (1999) elaborate on this and state that it is a mistake to conclude that no agreement was reached if a plan or policy is not produced as a result of a process. Informal agreements and understandings are also positive outcomes. They define consensus building as a form of collaborative practice that is at “one end of a continuum in its systematic nature and inclusiveness” (p. 413) and argue that conventional success evaluation may result in seeing successful processes as failures and vice versa. They state that “agreement for the sake of agreement is not success. Quality matters” (p. 415). The implied measure of success here is the quality of the process. Whether it produces an agreement or not might not matter.

The evaluation literature provides criteria to measure the success of public programs. For example, Suchman (1967) suggests using effort, performance, adequacy of performance, efficiency, and process criteria to measure success of public service and social action programs. The effort criterion measures input, the quantity and quality of the activity that takes place, and seeks to answer the questions what is done and how well is it done through time and money spent. The next two criteria Suchman defines are not well differentiated. The performance criterion measures the output/effect, results of the effort rather than the effort itself. Adequacy of the performance is a relative measure that compares the performance with the preset goals. This research uses an “outcome” criterion that combines these two. The efficiency criterion compares the program with alternative paths and methods in terms of money, time, personnel and public convenience costs. The process criterion examines how and why a program works or does not work. The first four criteria describe whether or not a program is successful. The process criterion aims at locating the cause of success or failure.

From these five criteria of success the only one that applies to the question this research is aiming to answer is performance/adequacy of performance (outcome). Effort variables such as time and money dedicated to the project are determinants of success rather than measures of success in the context of this study. Efficiency is not measured in terms of comparing with alternative paths because this project is looking at a wide variety of cases with different circumstances. The complexity is too great to attempt to identify the particular goals and
alternative paths and methods of management for each case. But the economic efficiency in reaching outcomes is included in the outcome criteria. Since the process criterion examines causes of success and failure it is used in this research as an independent variable and therefore excluded from measures of the dependent variable of success.

Instead of using the five criteria of Suchman detailed above, success of a collaboration is measured in terms of outcome and process criteria as proposed by Innes and Booher (1999) for evaluating the success of consensus building. Outcome criteria measure whether the cooperating organizations are approaching their goals by asking how much has been accomplished relative to an immediate goal, whether any change occurred in terms of reaching the goal, and whether the change was the one intended (Suchman, 1967). Process criteria measure whether the participants are satisfied with the collaboration process. As explained in the following sections, this research considers satisfaction of collaboration participants as one of the outcomes and classifies all these under outcome variables.

Operationalizing performance/outcome is not that easy and there is not extensive literature on criteria particular to the success of collaborations. Gray (1989) summarizes a list of objective and subjective criteria for judging success of collaborations. Whether or not an agreement was reached and whether it was implemented are the objective criteria. Some other criteria involve more subjective standards that reflect the participating stakeholders’ assessments of the outcomes. For example, parties that are not satisfied with the collaboration process will not like the outcome. She argues that realistically, a successful collaboration will satisfy several, if not all, of these objective and subjective criteria.

Michaels et al. (1997) develop a list of criteria for environmental management to use in their research on public/private partnerships that include ecological protection; satisfaction of partnership participants; capacity-building of organizations; economic efficiency in achieving specific outcomes; building of trust among partnership participants and fostering trust on the part of non-participants; and equity in decision making and outcomes. Yaffee et al. (1996) surveyed the participants of 105 cooperative ecosystem management cases to see how well collaborative as opposed to competitive approaches to ecosystem management were faring and asked the respondents to describe the success of the collaborative process. They state that the responses they got are proxies for evaluating success by incorporating several possible measures:
realization of goals, effective implementation of strategies, and establishment of activities that are likely to lead to successful ecosystem management in the future, and other desirable results.

The following sections synthesize the particular criteria of success from the above literature within the framework of outcome variables. Table 2.1 shows the framework that is used to judge the success of collaborations among organizations in natural resource management.

<table>
<thead>
<tr>
<th>Outcome Criteria:</th>
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<tr>
<td>• Realization of goals</td>
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<tr>
<td>⇒ Achieving each party's goals</td>
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<tr>
<td>⇒ Capacity-building of organizations</td>
</tr>
<tr>
<td>⇒ Whether the outcome resolves the real issues in dispute</td>
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<tr>
<td>⇒ Conformance of the solution to available objective standards</td>
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<tr>
<td>• Durability of the agreement</td>
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<tr>
<td>• Enhanced interorganizational relations</td>
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<tr>
<td>⇒ Improved communication among collaboration participants</td>
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<tr>
<td>⇒ Improved working relationships among collaboration participants</td>
</tr>
<tr>
<td>⇒ Building trust and respect among collaboration participants</td>
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<tr>
<td>• Satisfaction of collaboration participants</td>
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<tr>
<td>⇒ Overall satisfaction of the participants</td>
</tr>
<tr>
<td>⇒ Do the parties feel they affected the decision?</td>
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<tr>
<td>⇒ Does the agreement produce joint gains for the parties?</td>
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<tr>
<td>⇒ Willingness of the stakeholders to implement the decision</td>
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<tr>
<td>⇒ Equity in the outcomes</td>
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<tr>
<td>• Efficiency</td>
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<tr>
<td>⇒ Resource efficiency</td>
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<tr>
<td>⇒ Time efficiency</td>
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i. Realization of goals

Leach and Pelkey (2001: 380) reviewed 37 studies on watershed partnerships. One of the definitions of partnership success used was “the adoption and/or implementation of watershed plans, projects, or policies, and their eventual impacts on environmental and/or socioeconomic indicators.” In their survey, Yaffee et al. (1996) did not give a specific definition of success but
rather asked the participants to describe success of the projects in their own terms. One third of the projects reported specific ecological results. Among the most frequently mentioned were development of a management plan, ongoing restoration activities, and restoration results or land acquisition and easements. Michaels et al. (1997) use project outputs such as ecological protection or improvement to measure success. Some of these are program implementation outcomes but the same criterion is applicable to process goals as well.

*Capacity-building of organizations* is identified as a successful outcome measure by MacKenzie (1996), Michaels et al. (1997), and Leach and Pelkey (2001). However, these authors do not elaborate on what constitutes capacity building. For their study to evaluate the influence of state mandates on the content and quality of comprehensive plans of local governments, Berke and French (1994: 239) define capacity building as “actions to increase local governments’ ability to plan.” They include technical assistance, staff training or education, development of data bases and maps, and funding for personnel and equipment among these actions. This study measures capacity building through acquisition of new resources (technology, labor, funds, or equipment), acquisition of knowledge, information, or expertise, and acquisition of knowledge that results in new decision-making structures and/or processes.

Among the variables Gray mentions (1989) are *whether the outcome satisfies the real issues in dispute* and *conformance of the solution to available objective standards*. Gray does not elaborate on how to define these variables. Thus, this project uses the measures of the variable *realization of goals* as one of the measures of success. Realization of goals encompasses whether the outcome satisfies the real issues in dispute, achieving each party's goals, capacity-building of organizations, and conformance of the solution to available objective standards.

ii. Durability of the Agreement

Gray (1989) also suggests using *durability of the agreement*. This is important because an agreement that does not stand the test of time cannot be considered successful regardless of its content or the process through which it is reached. Leach et al. (2002: 653) mention institutional longevity as a measure of success but warn that “longevity (or time) can also be viewed as a cost of cooperation rather than a benefit.”

iii. Enhanced Interorganizational Relations

Another outcome variable, *enhanced interorganizational relations*, is measured by *improved communication among the stakeholders* (Gray, 1989; Yaffee et al., 1996); *improved
working relationships (Gray, 1989), and building trust and respect among collaboration participants and fostering of trust on the part of nonparticipants (Michaels et al., 1997; Leach and Pelkey, 2001).

Innes and Booher (1999) argue that outcomes to be measured should include intangible products such as social, intellectual and political capital as well as tangible products. Social capital includes new or stronger personal and professional relationships and built up trust; intellectual capital includes mutual understanding of each others’ interests, shared definitions of the problem, and agreement on the data, models, projections, or other quantitative or scientific descriptions of the issues; and political capital includes the stakeholders’ combined capacity to influence action in ways they were unable to when acting individually.

iv. Satisfaction of Collaboration Participants

Satisfaction of partnership participants (Michaels et al., 1997; Leach and Pelkey, 2001) is also an important subjective outcome variable. Gray (1989) suggests asking whether the parties feel they affected the decision, whether the agreement produced joint gains for the parties, and whether the stakeholders are willing and able to implement the decision. Because this study excludes implementation, only willingness of the stakeholders to implement the decision is used as a criterion. Equity in the outcomes, which is mentioned by Michaels et al. (1997), is also part of the satisfaction of collaboration participants.

v. Efficiency

Economic efficiency and time efficiency are objective criteria. Michaels et al. (1997) use economic efficiency in achieving specific outcomes and Gray (1989) suggests asking whether the process was efficient in terms of time and resources. These variables can be applied to the decision making process as well as implementation. Resource efficiency and time efficiency during the decision making are examined in the cases that were surveyed.

2. What Factors Make a Collaboration Successful?

Most of the limited information in the organization theory literature on what makes collaborations successful comes from research done for purposes other than determining factors that lead to success in a collaboration. For example, Gray (1989) examines collaboration as a process for solving complex problems in her book and Yaffee et al. (1996) assess ecosystem management cases in their study in order to see how ecosystem management is practiced on the
ground and determine how well cooperative approaches to ecosystem management were faring as opposed to competitive ones.

Gray (1989) groups the important factors in organizing for a successful collaboration into two categories: member factors and process factors. Member factors are factors that are related to the participants in the collaboration such as inclusion of all affected stakeholders at the stage of problem definition, sufficient stakeholder incentives, commitment and effective leadership. Process factors are factors related to discretion over the process of collaborating such as ripeness of the issue, decision-making structure, availability of mediators during crisis points in decision making, organization and centralization of the collaboration, and the relationship between the parties. A third group of factors are added to these to encompass resource factors that may be beyond the control of the collaboration participants. These include political support and funding.

i. Member Factors

Inclusion of All Affected Stakeholders

Gray (1989) argues that not involving key stakeholders is one of the serious limitations to successful collaborative processes. She emphasizes that evidence from cases in which key stakeholders were left out or not represented directly suggests that implementation was more often impaired. The absence of those with power to implement the decisions especially reduces the extent of implementation of agreements. Owen (1998: 129) states that involving “the affected parties’ representatives in the design and development of the process, as well as the negotiations on substantive issues” is a key to success in shared decision-making. MacKenzie (1996) identifies one of the institutional prerequisites to the success of ecosystem-based resource management as participation of appropriate actors. This includes intergovernmental as well as interdisciplinary participation. In their analysis of the Great Lakes Water Quality Agreement Hartig et al. (1998) found that broad-based stakeholder involvement in the planning, decision-making and implementation stages was one of the important principles that contributed to effective implementation. Leach and Pelkey (2001: 383) found that establishing inclusive membership rules / encouraging diverse participation was pointed out as a key to success in 16 of the 37 watershed partnership studies they examined and “[s]ix reviewed studies cautioned that excluded stakeholders can undermine a partnership by taking grievances to alternate venues such as legislature or courts.”
Magnitude of Stakeholder Incentives

Sufficient stakeholder incentives are also important. The danger of a higher authority imposing a solution if one is not developed collaboratively may induce some stakeholders to participate to ensure that their interests are incorporated in the solution. Gray (1989) believes that mandates from external parties may guarantee that parties appear at the table, but they do not typically encourage parties to negotiate in good faith. For parties to take negotiations seriously and search for an integrative outcome, they must believe that their interests are better served by collaborating than by other means. Gray (1989) argues that mandates alone do not guarantee these beliefs. In addition, individual stakeholders must see a compelling reason to try collaboration. If they do not believe that their interests will be protected and advanced throughout the process they will be reluctant to collaborate. Stressing the costs of taking no action can be a way of increasing the incentives to collaborate (Gray, 1989).

Commitment

The rational choice literature assumes that human behavior is self-serving and individuals are always subject to temptations to give up prior promises for collaboration if they expect this would bring additional gains to them. As a result, credible commitment of participants is vital to ensure the viability of a collaboration (Robertson and Tang, 1995). Enhanced commitment to plans emerges from participation in their design. Hartig et al. (1998) argue that in the success of the Great Lakes Water Quality Agreement commitment of top leaders is crucial. Whaley (1993) identifies commitment of one individual, not just an organization, as one of the elements of successful partnerships. In their review of the empirical literature on watershed partnerships Leach and Pelkey (2001) found that committed participants were mentioned as a key to success in 43 percent of the 37 studies they examined.

Effective Leadership

The United States Bureau of Justice Assistance report (1997) mentions progressive, passionate political leadership as an element that helps keep a collaboration together. Bryson and Crosby (1992) argue that successfully tackling public problems requires effective leadership. In Leach and Pelkey’s (2001) analysis effective leadership and management were among the most frequently recurring themes with mentions in 59 percent of the studies.
ii. Process Factors

Ripeness of the Issue

Among the process factors that can positively influence the chances of success is the ripeness of an issue which can be a critical determinant of stakeholders’ readiness to collaborate. Gray (1989) shows that issues that have not yet gained widespread public attention may be premature for collaboration. Issues may require time to mature so stakeholders can be identified, groups can organize, and data can be gathered. Issues that have passed the legislative stage, on the other hand, may no longer be ripe for collaboration until implementation questions are raised.

Decision-Making Structure

One of the institutional prerequisites to the success of ecosystem-based resource management identified by MacKenzie (1996) is the development of a mutually agreed upon decision-making process. The subcomponents of this are consensual decision-making, development of a common vision of the desired future state of the resource, and dispute resolution. Yaffee et al.’s (1996) survey responses show that the participants regarded development of new decision-making structures such as partnerships, management committees, task forces or some type of coordinating body as central to the ecosystem management effort.

Blodgett’s (1992) study shows that collaborations are less stable when participants start with uneven shares of equity with one party being more dominant, but she warns that instability does not say anything about performance. Hartig et al. (1998) also emphasize the importance of involvement as equal partners in defining the needs and identifying problems, causes, solutions, and resources. Inequalities in distribution of government resources and media attention will result in power imbalances.

Although consensus building is seen as a critical issue in the management of successful collaboration, Westley (1995) argues that power distribution is equally important and actors involved in collaborative efforts must ensure that some equal access to resources is provided. Rogers and Mulford (1982) suggest that unequal distribution of power and power struggles constrain interorganizational relations. Gray (1985: 927) suggests that while an equal power distribution may be undesirable because it can lead to stalemate, “a sufficient distribution of power is necessary to insure that all stakeholders can influence direction-setting.”

Careful management of the process is another important success factor cited by Gray (1989). This includes incorporating the principles of participation, ownership and power sharing.
in the collaborative designs. Process issues must be discussed openly, and there should be agreements on how the group will conduct itself. Gray (1989) sees drafting and agreeing on ground rules as an essential step in assuring that the parties accept responsibility for the process. Gray (1985) asserts that collaboration will be enhanced if the stakeholders create a mutually acceptable regulatory framework.

**Availability of Mediators during Crisis Points in Decision Making**

It is important to recognize that even when agreements are reached, unanticipated conflicts may arise afterwards. Provisions should be built into the original agreement for how these subsequent disputes will be addressed. Gray (1989) states that having a legitimate negotiator and convener is crucial to the collaboration process and sometimes unless one has been found it is wiser not to collaborate.

**Organization and Centralization of the Collaboration**

Although the literature reviewed did not mention the structural organization of the collaboration as a factor that affects the success of a collaboration, this study finds it worthwhile to examine this as a possible factor. The organization and the degree of centralization of the cases is measured based on the framework developed in Table 1.1 from Mulford and Rogers’ (1982) typology of collaborations that include cooperation, mutual adjustment, alliance, and corporate strategies. Six dimensions of collaborative initiatives are examined to decide which one of the three strategies a particular case represents: rank of the participating agency representatives, degree of formalization of the collaboration, level of resource commitment to the collaboration, focus of power in the collaboration, focus of control in the collaboration, and focus of collaboration goals.

**The Relationship Between the Parties**

As a process variable the relationship between the parties includes agreement on the scope of the collaboration, a shared ideology or common ground among participants, negotiating in good faith and having trust in relationships, maintaining good interpersonal relationships with the participants, and establishing open lines of communication.

*Agreement on the scope of collaboration* is important because differing expectations can derail the proceedings. Gray (1989) defines scope to include the general problem domain and the intent of collaboration.
Existence of a shared ideology among participants is one of the process variables that determine the success of a collaboration. Westley (1995) believes that the coincidence of shared understandings, myths, paradigms, and values fosters agreement among parties.

Negotiating in good faith is another important factor since questioning the intentions of negotiators and skepticism can lead to failures. Kumar and Van Dissel (1996) point out that negotiating in good faith is important: any short-term opportunistic behavior increases the level of mistrust between the participants and deters future cooperation. They argue (p. 296) that to sustain interorganizational alliances companies

“need to recognize and implement the roles of corporate ‘statesmen,’ ‘diplomats,’ and ‘peace observers’ who not only seek out and build peace agreements and treaties, but also, on an ongoing basis, guard against misunderstandings, misinterpretations, and perceived or real betrayals that may lead to the disintegration of the relationship.” [Emphasis added]

Gray (1989) advises conveners and mediators to be alert to possible or perceived breaches of faith, misinterpreted signals, and unwitting affronts and to resolve these misunderstandings when they occur to maintain trust among parties. Hamel (1991) shows in his research that a collaboration’s success depends on trust. Ring and Van De Ven (1992) also argue that trust is central to understanding bargaining transactions. Leach and Pelkey’s (2001) literature review on 37 watershed partnership studies shows that good interpersonal relationships and mutual trust was seen as a key to success in 43 percent of the studies.

Maintaining good relationships with constituents is another crucial factor. Gray (1989) believes that mechanisms should be built in for participants to confer with and gain the commitment of their constituents before they reach final agreements. Otherwise, the spokesperson will not be able to adequately represent the views of his/her constituency or at times, s/he might not even have the authority to make settlements that bind the group.

iii. Resource Factors

One of the institutional prerequisites to the success of ecosystem-based resource management is legitimacy according to MacKenzie (1996). Legitimacy comes from political support, public participation, and funding. Since public participation is related with the implementation stage of programs and this study focuses only on planning and decision making process, only political support and funding are included in this analysis.
Political Support

MacKenzie (1996) states that when no single organization has the authority to force another to act, political support from elected officials and administrative agents legitimizes the effort and compels reluctant agencies to participate in joint efforts.

Funding

An organization’s allocation of competitive limited public funds to a specific program shows the government’s intentions and legitimizes the program and furthers the probability of the success of the initiative (MacKenzie, 1996). Leach and Pelkey (2001) found that adequate funding is seen as important to watershed partnership success in 62 percent of the 37 research studies on the topic.

iv. Conclusions

A list of determinants of success derived and synthesized from the above literature is presented at Table 2.2. The next step is to examine cases of collaboration in natural resource management to see if in practice these factors have a role in success. This is the focus of Chapter Three.
<table>
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<tr>
<th>Table 2.2. Determinants of Success</th>
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<tr>
<td><strong>Member Factors:</strong></td>
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<tr>
<td>• Inclusion of all affected stakeholders</td>
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<td>• Magnitude of stakeholder incentives</td>
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<td>• Commitment of the collaboration participants to the collaboration process</td>
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<td>• Effective leadership for the collaboration</td>
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<td><strong>Process Factors:</strong></td>
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<tr>
<td>• Ripeness of the issue</td>
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<tr>
<td>• Decision-making structure</td>
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<tr>
<td>⇒ Equity in decision making</td>
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<tr>
<td>⇒ Power distribution among the parties</td>
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<td>⇒ Agreement on ground rules</td>
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<tr>
<td>• Availability of mediators during crisis points in decision making</td>
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<tr>
<td>• Organization and centralization of the collaboration</td>
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<td>⇒ Rank of the participating agency representatives</td>
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<td>⇒ Focus of collaboration goals</td>
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<td>• The relationship between the parties</td>
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<tr>
<td>⇒ Agreement on the scope of the collaboration</td>
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<td>⇒ Shared ideology among participants</td>
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<td>⇒ Negotiating in good faith</td>
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<td>⇒ Existence of trust in the relationships</td>
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<tr>
<td>⇒ Maintaining good relationships among participants</td>
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<td><strong>Resource Factors:</strong></td>
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<tr>
<td>• Political Support</td>
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<td>• Funding</td>
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CHAPTER 3
EVIDENCE FROM CASE STUDIES OF COLLABORATIVE ECOSYSTEM MANAGEMENT

The purpose of this section is to examine cases in which collaborative planning/management strategies in natural resource management have been used in order to identify which factors were decisive in the success of the collaborations. The first part gives a summary of the collaborative aspects of the cases (participation of stakeholders, decision-making, process etc.). The second part combines this information with the determinants of success presented in Table 2.2. The final section gives some conclusions on which factors are found to be important determinants of success of collaboration in the cases examined.

I. Overview of the Cases

This section gives an overview of some collaborative natural resource management case studies from the literature. Some of these efforts are more successful than others in achieving their goals. The cases are examined to identify the factors that contributed to their success.

The limitations of this analysis come from the use of secondary data which limits the sample for the cases with the availability and accessibility of the data. Another limitation that comes with the secondary data is the fact that these cases were researched and summarized by different authors and they were not designed to answer the questions posed in this particular research. Therefore the results cannot be conclusive about the relative importance of different factors. It should be taken as an initial effort to link the broader theory on collaboration with the experiences described in a series of natural resource management cases.
The cases summarized below are selected for their complexity involving multilevel governments and multi-issue problems which include natural resource management. They are visible cases which have been studied and published because of their success.

1. The Columbia River Estuary Study Taskforce

The Columbia River has undergone significant habitat changes due to diverse economic activities in the surrounding area. McCreary and Adams (1995: 103) describe the Columbia River Estuary Study Taskforce (CREST) as “a local consortium of individuals appointed by municipal governments in the states of Washington and Oregon” with the mission of “prepar[ing] and implement[ing] a regional management plan for the waters and shorelands of the Columbia River estuary.”

Created in 1975, CREST is a voluntary consortium of two states, multiple federal agencies, and ten local governments. The lead agencies are the Land Conservation and Development Commission of Oregon which is housed in the Oregon Department of Land Conservation and Development (DLCD) and the Washington Department of Ecology. The CREST plan was developed by the CREST council, a representative body of local officials; eleven major committees convened to advise on discrete subjects; and three technical advisory committees. The public was included in all policy development sessions through an extensive outreach program that included workshops and hearings. The four major issues the CREST plan was intended to address were land and water use; fish and wildlife; physical alterations and hydraulics; and political and resource management fragmentation.

The initial CREST plan was adopted by all of its member local governments in June 1979. Local approvals were followed by state reviews in Washington and Oregon. Final approval by the state agencies came in 1983 after lengthy negotiations and mediation procedures to reach full agreement.

During state review by the Oregon DLCD some previously unresolved conflicts concerning the type and intensity of proposed land uses, discretion on wetland areas and establishment of new port facilities reappeared. In response to these areas of disagreement, CREST prepared a regional economic analysis, and the Oregon Economic Development Department completed a study of Oregon ports in 1978.
In 1979 the Environmental Mediation Institute (EMI) offered to help mediate CREST’s dispute with the DLCD. However, since the parties had not reached a full impasse at that time CREST did not believe that neutral assistance was needed. One year later, CREST commissioners asked for EMI’s help because of the pressures to move ahead with economic development under the plan. The two studies mentioned above became the starting point for a mediated agreement along with a set of DLCD ground rules for addressing the Columbia River’s needs.

McCreary and Adams (1995) find the formal mediation process central to settling the disagreements and completing the CREST plan. The mediation process had some side benefits of providing opportunities for broader public participation in the negotiations and increasing the amount of technical information available to decision-makers at all levels. Before mediation technical resources were heavily weighted on the side of federal and state agencies.

McCreary and Adams (1995) mention that the planning process established very good working relationships among state and local government agencies, and improved access to information and locally available expertise. Although the planning process is considered successful, support by some federal agencies is perceived as equivocal. McCreary and Adams (1995: 127) report that “during and after the mediation process, local government representatives were disappointed in federal agencies’ lack of commitment to the spirit of the agreement.”

2. Hackensack Meadowlands, New Jersey

The Hackensack Meadowlands in northern New Jersey, which have been “used for many years as a dumping ground for garbage and chemical wastes,” encompass a 32-square-mile region, one third of which is wetlands (Finder, 1995: 139). The 1980s brought the additional challenge of real estate pressures as a result of the area’s proximity to New York and major thoroughfares. On the opposite side of the real estate interests were the environmentalists who wanted to preserve and restore the remaining wetlands. Changing federal regulations conflicted with statutory obligations of state agencies.

To address these problems, several state and federal agencies signed a Memorandum of Understanding in 1988 to prepare a Special Area Management Plan (SAMP) for the Hackensack Meadowlands. These included the Hackensack Meadowlands Development Commission (HMDC), the area-wide planning agency for the Meadowlands whose zoning and planning
authority extends over parts of the 14 constituent political jurisdictions; the New Jersey Department of Environmental Protection; and several federal agencies, such as the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers. The SAMP agencies agreed during negotiations of the Memorandum of Understanding that full, decision-making participation in the program required signing of the Memorandum. As a result of this, the U.S. Fish and Wildlife Service, which proposed several conditions which were unacceptable to the SAMP partners, did not become a partner.

HMDC and its SAMP partner agencies sought to integrate local and regional planning into the federal environmental regulatory procedure. The plan was specifically aimed to incorporate the Clean Water Act’s Section 404(b)1 “practicable alternatives test” requirement within a regional land use master plan. §40 C.F.R. 230.10(a)(1) states that the Army Corps of Engineers may issue a permit for discharge of dredged or fill material to a wetland only if there is not a practicable alternative that would have less adverse impact on the aquatic ecosystem and have no other adverse environmental effects (Mandelker, 1998).

Although each partner was highly sensitive about infringing upon the statutory jurisdiction of the others, there existed a commonality of respective issues, goals and procedures. Nevertheless, the period between the signing of the Memorandum of Understanding and spring 1990 when an Environmental Impact Statement on the SAMP was commenced was “fraught with tension and misconceptions among the SAMP partners,” partly “due to misunderstandings about the agencies’ missions” (Finder, 1995: 146). HMDC, whose mission was “to halt uncontrolled development in the Meadowlands” was perceived as too pro-development by federal resource agencies.

Finder (1995) attributes much of the difficulty to the relative absence of common ground among professional disciplines: engineers, scientists, and planners. The SAMP partners did not engage a professional mediator. In spite of this, the SAMP process produced the useful and long-term by-product of close and effective working relationships. All SAMP participants realized that they would have to reach a compromise in order to achieve a viable plan that would benefit everyone. Finder believes that the SAMP plan will result in planned development and compliance with the practicable alternatives test. He (p. 156) suggests that the project demonstrates “the importance of establishing clear lines of communication and constructive interpersonal relationships among all the parties involved, ... effective interagency coordination
and of utilizing a mediator to resolve the differences.” His conclusion implies that, had they used a mediator, they would have resolved their differences earlier and more quickly.

3. Chiwaukee Prairie, Wisconsin

Statutory requirements, environmental problems and development pressure prompted the town of Pleasant Prairie and the Kenosha County Office of Planning and Zoning Administration to ask the Southeast Wisconsin Regional Planning Commission (SEWRPC) to convene a group of representatives of concerned federal and state agencies, local governments, business and civic organizations, and property owners to initiate a wetlands planning process. The aim of the plan was to balance open space preservation and urban development objectives in the Chiwaukee Prairie/Carol Beach area (Haygood, 1995).

SEWRPC organized a Technical Advisory Committee (TAC) to participate in the planning process. The committee included representatives from the SEWRPC, the Wisconsin Department of Natural Resources (WDNR), Kenosha County, the town of Pleasant Prairie, U.S. Army Corps of Engineers, U.S. EPA, U.S. FWS, Wisconsin Electric Power Company, the Kenosha Water Utility, the Wisconsin Chapter of the Nature Conservancy, the Wisconsin League of Women Voters, the Carol Beach Estates Property Owners Association, the University of Wisconsin at Milwaukee Department of Botany, and two property owners from the area to represent the residents.

SEWRPC, which was a nonvoting member of the TAC, was charged with performing technical studies, research and mapping, and drafting the Land Use Management Plan with assistance from other agencies; convening the TAC to oversee the development of the plan; and informally facilitating the development of consensus on the plan. There was a variety of opportunities for input by citizens of southeast Wisconsin through the TAC, such as public hearings and written comments on the alternatives, and Haygood (1995) argues that this resulted in a creative plan.

Haygood (1995) finds that the plan had mixed success in orderly resolution of conflicts over the use of resources in Chiwaukee Prairie. On the plus side the plan preserves most of the important prairie uplands and more than 90 percent of the wetlands. About 60 percent of the area designated for protection has been purchased through acquisitions and donations. The technically “outstanding” plan “helped achieve a reasonable balance between development and
conservation,” and the planning process was successful in “coordinating multiple governmental authorities ... gathering, generating and interpreting a variety of data ... [and] resolving conflicting views on resource use within the context of applicable laws and information” (Haygood, 1995: 177).

On the negative side, the plan did not achieve no net loss of wetlands. On the contrary, Haygood argues that the planning process resulted in more development of the wetlands compared to the absence of the plan. The planning process was stretched over eight years. There were some procedural problems that prevented an orderly resolution of the issues. Normally SEWRPC committees represent the local interests in a particular planning area. However, due to the statewide and national significance of the Chiwaukee Prairie as a natural resource, state-level environmental groups were also interested in the planning process. They were forced to use other channels to air their views, such as pressuring the WDNR and the public intervenor and participating in public meetings, because they were not directly represented on the TAC.

In addition to this, Haygood (1995) believes that landowners were overrepresented on the TAC relative to their authority because they nearly had an automatic majority, while local government representatives and WDNR, which had several salient authorities, found their influence understated. This led WDNR to initiate an Environmental Impact Statement process that encompassed many of the same issues as the SEWRPC process causing confusion and duplication.

4. The Ecosystem Approach in the Great Lakes Basin


AOCs are areas across the Great Lakes where the water quality of the lakes near the shore or their tributaries is severely compromised. These areas have been identified by the International Joint Commission Water Quality Board. 1987 Amendments to GLWQA added a
protocol for preparing Remedial Action Plans to be prepared for each site. The RAPs should include in Stage One the definition of the environmental problem and geographic extent of the area affected; identification of beneficial use impairments; and description of causes and sources of problems and pollutants. Stage Two should identify proposed remedial actions; define a schedule for implementing the remedial actions; and identify jurisdictions and agencies responsible for implementation. The last stage should describe the process of evaluating the remedial program implementation and the surveillance and monitoring activities to track program effectiveness (MacKenzie, 1996: 22).

i. Hamilton Harbour RAP, Lake Ontario

Pollution of Hamilton Harbour has been a long-standing problem. There had been efforts to clean up the harbour before it was designated as one of the areas of concern. Jurisdiction over the area is shared by more than a dozen agencies. The RAP process for Hamilton Harbour watershed provided an opportunity for movement toward problem-specific coordinated water planning and management. The federal-level Environment Canada agency took the primary leadership role and developed the Hamilton Harbour RAP with the Ontario Ministry of Environment and Energy (MOE).

Two groups were formed in 1986 to assist in preparation of the plan. The technical writing team was responsible for creating the Stage One RAP document and included representatives from Environment Canada, the Ontario MOE, the Canada Department of Fisheries and Oceans, the Ontario Ministry of Natural Resources, the Ontario Ministry of Agriculture and Food, and the Royal Botanical Gardens. Stage One of the process included extensive research by natural scientists to analyze the chemical, physical and biological characteristics of the Hamilton Harbour ecosystem. This research showed that technical solutions such as upgrading sewage treatment plants and constructing combined sewer overflows were necessary. A stakeholders group including federal, provincial, regional, and municipal governments; the public; organized labor; private industry; academia; and public interest groups, was established to provide guidance and public consultation on the remedial plan.

MacKenzie (1996) reports that there was a higher degree of intergovernmental participation in the development of the RAP than in previous environmental efforts in the watershed. However, despite the high degree of intergovernmental participation during the Stage One process, some participants noted the lack of participation by municipal officials on the
technical writing team which was responsible for writing the Stage One document (MacKenzie, 1996). They only participated in the stakeholders group. From the interdisciplinary perspective, lack of social scientists in the RAP process was observed. As the focus shifted from technical solutions to human behavior and the ethical aspects of the ecosystem approach, the role for social scientists in the Stage One process became apparent.

Decisions were made by consensus of the stakeholders after the biggest challenge in the decision-making process was overcome by the help of a facilitator: building a sense of trust among the stakeholders. MacKenzie (1996) believes that bringing the stakeholders together at one table to discuss the RAP objectives led to the development of some unanimity of thought on the plan and created a shared vision of the future desired state of the resource. MacKenzie (1996) identifies the need for more open lines of communication between the government and the stakeholders because some federal and provincial agency representatives outside the stakeholders group were discussing implementation issues during the time the stakeholders group was considering their role in implementation.

ii. The Lower Green Bay and Fox River RAP, Wisconsin

In the Lower Green Bay and Fox River area, wetlands have been destroyed, shorelines have eroded, and fish and wildlife habitat has been severely degraded by water pollution, turbidity, and invasion of exotic species. Participants in the RAP process included the city of Green Bay, the Green Bay Metropolitan Sewerage District, Brown County, the Bay Lake Regional Planning Authority, the Wisconsin Department of Natural Resources (WDNR) Bureau of Water Resources, the WDNR Lake Michigan District office, the University of Wisconsin at Green Bay, the Wisconsin Sea Grant Office, the Center for Great Lakes Research, EPA Region 5 and the EPA Great Lakes National Program Office, the regional office of the U.S. FWS, and the local industrial sector (MacKenzie, 1996).

In terms of interdisciplinary participation the RAP coordinator made an effort to include individuals with a wide range of expertise and training in the RAP process. For the Stage One RAP a citizens advisory committee (CAC) and four technical advisory committees (TACs) were created. The CAC included local and regional government representatives, public interest groups, recreational groups, industry and the federal government. TAC representatives came from universities, federal and state agencies, local and regional government, and industry.
The preferred decision-making process was through unanimous vote, however the volume of data and time limitations resulted in a majority vote with a minority report in cases where unanimous agreement could not be reached. Achieving a shared vision of the desired future state of Green Bay was a challenge for RAP participants that was compounded by the diverse perspectives, levels of government, range of expertise, and motivations of the participants. Participants eventually supported the priority actions, but significant differences of opinion remained, particularly on the subject of implementation.

MacKenzie (1996) reports the strongest intergovernmental participation (stakeholder inclusion) at the local and state levels. The communication network and cooperation across local governments was good as a result of their commitment to intergovernmental coordination and long duration of leaders at key positions. Time was also ripe for the remediation of Green Bay. Political support for the RAP was strong at the local level within Green Bay and Brown County and negligible elsewhere. The level of support at the state level was mixed. Some participants characterized it as low, some high, depending on whether they measured support as a function of funds allocated or staff-time. Despite efforts, there was not a high level of public interest and participation. One problem was deep mistrust between WDNR and some public interest groups. Environmental groups believed that some of the decisions were made behind closed doors and were suspicious about the relationship between industry and WDNR. The Green Bay RAP had legitimacy and wide visibility as a result of the long history of research on Green Bay and the distinguished reputations of the key actors in the RAP. MacKenzie (1996) finds that participation of key individuals that are connected through a loose but functioning interpersonal network was very helpful in the information transfer process.

iii. Saginaw Bay RAP, Michigan

Two primary pollution problems in Saginaw Bay are eutrophication resulting from agricultural phosphorus discharges and contamination with organics and chemicals from industrial processes. There was no concentrated remediation effort until its designation as an area of concern in 1985 by the IJC. The Michigan Department of Natural Resources (MDNR) was the lead agency for the RAP development. Other participants in the process included the Michigan Departments of Agriculture and Public Health, the East Central Michigan Planning and Development Region, the National Wildlife Federation’s Great Lakes Office, and the University of Michigan School of Natural Resources. Representatives from all twenty-two counties in the
RAP drainage area were invited to join the Saginaw Bay Natural Resources Steering Committee which was in charge of providing an organized public review of the RAP, advising agencies, and providing public information and education regarding the RAP. In addition to the county representatives, the Steering Committee membership included citizens, academicians, and industry representatives.

A technical work group was in charge of reviewing and commenting on the scientific elements of the RAP. It was composed of representatives from EPA, U.S. FWS, U.S. Department of Agriculture, U.S. Army Corps of Engineers, the National Oceanic and Atmospheric Administration (NOAA), U.S. Geological Survey, MDNR, the Michigan Department of Agriculture and Public Health, several environmental consulting firms, and research scientists from the state university system.

In the Saginaw Bay RAP parliamentary rules guided the decision-making process. The Natural Resources Steering Committee was divided into three work groups and each had a moderator. Consensus was the aim within these work groups, but this was almost unattainable. The result was vague language in order to accommodate disparate viewpoints. More importantly, some issues were not resolved.

MacKenzie (1996) believes that coming to agreement within a large group when participants hold different positions on the nature of the problems and solutions requires at least one of the following three elements: a shared vision of the goal, a broad commitment to consensus, or an independent facilitator. None of these elements was present in the Saginaw Bay RAP. The geographic scale of the RAP was so immense that MacKenzie (1996: 90) calls it “virtually unmanageable.” The drainage basin is more than 8,700 square miles covering about 15 percent of the land area of the state. This was an obstacle to developing a common vision. There was a distinct division between urban and rural interests. Within the context of the restricted role of the steering committee creation of a common vision among its participants was viewed as unnecessary. Participation of municipalities (stakeholder inclusion) was limited.

5. Grays Harbor Estuary Management Plan, Washington

Development and preservation conflicts have been plaguing Grays Harbor, Washington (Brower and Carol, 1987). One of these controversies involved an application to build an offshore drilling equipment factory and eventually resulted in the formation of the Grays Harbor
Estuary Management Task Force in 1975 including local, state, and federal agency representatives, and coastal interest groups (Walters, 1987).

The estuary management plan developed by the task force is one of the first examples of collaborative, area-wide planning (Salvesen and Porter, 1995). It was recognized by the U.S. Congress and contributed to the 1980 amendment to the Coastal Zone Management Act to encourage Special Area Management Plan efforts (Brower and Carol, 1987). Walters (1987) defines special area management as an attempt to manage development in complex ecological and administrative settings.

Salvesen and Porter (1995) find the Grays Harbor planning process inconclusive and unsuccessful because two of the main groups that would be affected by the plan, developers and environmentalists, were not officially involved in the planning process. While examining the Special Area Management Plan process, Walters (1987) argues that including the right people is crucial. He reports that having a conservation representative excluded from the task force has been identified by some as a mistake which resulted in continued adverse publicity about the plan. This case is one of the examples showing the importance of inclusion of all affected stakeholders in collaborative planning and management.

Walters (1987) notes the importance of trust and good faith as well. He reports that prior to the plan state and federal agencies and the Port of Grays Harbor were in opposing camps. However, during the planning process actions of good faith on both sides developed a mutual trust enabling informal resolution of a number of issues.

6. San Bruno Mountain Habitat Conservation Plan, California

San Bruno Mountain, California, was an area under tremendous development pressure and also home to a federally listed endangered species, the Mission blue butterfly (Beatley, 1995a). Substantial opposition to a large-scale development project that included some 8,500 residential units and 2 million square feet of office and commercial space initiated a process that resulted in a compromise to substantially reduce the size of the project. But opposition to the project continued by environmentalists because of the endangered butterfly.

Under the Endangered Species Act developers in this situation can get a permit after preparing a Habitat Conservation Plan. A unique regional management plan, which identified areas of the mountain that would be set aside in perpetuity was developed after extensive
biological study of the butterflies and their habitat needs. As a result, 87 percent of the butterfly habitat was put aside. The plan was developed jointly by the landowners and developers; environmentalists (e.g. Save San Bruno Mountain Committee); officials from San Mateo County, South San Francisco, Daly City, Brisbane and other surrounding local governments; and other interests. It was viewed by many involved as a successful mechanism for resolving urban development - endangered species conflicts.

7. Anchorage Wetlands Management Plan, Alaska

About 30 percent of the remaining developable land in Anchorage contains wetlands. As a result, development and preservation interests are in frequent conflict. The Anchorage Department of Community Planning and Development initiated a comprehensive planning process to deal with the dual pressures of developing and preserving the wetlands. Other participants in the preparation of the Anchorage Wetlands Management Plan included developers, environmentalists, representatives from state Departments of Fish and Game and Environmental Conservation, the U.S. Army Corps of Engineers, the U.S. FWS, the U.S. EPA, and NOAA (Salvesen, 1995). The public was provided ample opportunities to participate throughout the two-year planning process. There was no official mediator but the city staff moderated and facilitated the discussions to keep the process moving towards a consensus.

The plan required reevaluation every five years. A task force including representatives from the real estate community, conservation groups, federal resource agencies, the U.S. Army Corps of Engineers, and city officials was set up in 1987 for this purpose. One member of the task force noted a remarkably high level of cooperation and mutual understanding between the real estate community and the environmental community. Environmental representatives acknowledged the city’s need to make room for future growth some of which would have to be in wetlands. Developers were willing to support wetlands protection as long as it was clear where they could and could not build.

The compromises provided something for everybody. Salvesen (1995: 222) reports that “environmentalists were assured that at least in the short-run the vast majority of the wetlands in the preservation category would not be developed, while the development community could count on a more predictable and expedited permit process for projects in developable wetlands.”
8. Chesapeake Bay Critical Areas Program, Maryland

The Chesapeake Bay Critical Areas Program was created by the Maryland Chesapeake Bay Critical Areas Law in 1984 to improve water quality, preserve sensitive habitat, including wetlands, and limit the extent of growth around the Bay (Meyers et al., 1995). The same law established the twenty-five member independent Chesapeake Bay Critical Areas Commission and charged it with developing protective criteria to deal with development activities, resource utilization and resource protection, and supervising and guiding the development of local plans. The Commission ensures that the actions of local jurisdictions will be consistent with regional management objectives (Taylor, 1990).

Commission members included representatives of the affected local governments, representatives of diverse interests affected by the legislation and cabinet-level state officials. Their experience, divergent views and commitment to the work of the commission are given by Meyers et al. (1995) as major factors in the success of the planning process. Taylor (1990) also notes the high degree of commitment to the program among the reasons of its success.

The existence of relevant professional and technical capacities was another important factor since a skilled professional staff had an important role throughout the process of criteria development. Meyers et al. (1995) further argue that this process could only work with broad support from the general public and from the state’s chief executive, an adequate budget, statutory “hammers” to compel compliance, and leadership and expertise on the commission and its staff. The state’s political leadership and active participation was also important. Some observers complained of a lack of meaningful public input in the development of the criteria, but Meyers et al. (1995) believe that the commission provided opportunities to make sure all affected interests were heard. Costanza and Greer (1995) note that the existence of broad consensus on the common goal of protecting the bay ecosystem and reversing the decline enabled the bay to escape from the trap of local conditions that would put emphasis on short-term, narrow interest group goals and make a bad decision that would have negative consequences in the long run. In addition, an EPA-funded study helped achieve a broad consensus on the details of the problem and the methods of solution.
9. East Everglades Planning Study, Florida

The East Everglades Planning Study aimed at reconciling competing objectives of adequate water supply, flood protection, high water quality for fish and wildlife and recreational opportunities. The 1979 amendments to the state act that created Areas of Critical State Concern in 1975 required establishment of a Resource Planning and Management Committee which is a voluntary, multiple-interest group (Abrams et al., 1995). The lead agency in the committee is the Department of Community Affairs (DCA). Other participants include Florida Department of Environmental Protection, the Florida Game and Freshwater Fish Commission, the Florida Department of Agriculture, the South Florida Water Management District, the Dade County Planning Department, the Department of Environmental Resources Management, the National Park Service, the U.S. Army Corps of Engineers, the U.S. Department of Agriculture, environmentalists, Dade County businessmen, East Everglades residents, farmers and Miccosukee Tribe representatives.

Subcommittees appointed by the Committee chairman developed recommendations on the specific issues under discussion and reported to the full committee where a majority vote was required to accept recommendations. Abrams et al. (1995) report that this planning process relies on participant cooperation since only DCA gets funding for participation. But most of the other agencies not only participated in the planning process but also contributed staff expertise to a technical advisory committee.

Abrams et al. (1995) state that the committee built broad public support for the program areas indispensable for the success of wetland protection and restoration - land acquisition and flood protection. Porter and Salvesen (1995) show how mistrust and political maneuvering among participants frequently hampered the planning process. In the East Everglades agricultural interests were simultaneously participating in planning and in lobbying Congress for legislation that would negate the efforts of the planning group.

II. Factors that Facilitated the Success of the Cases

Following is an analysis of the factors influencing success in the cases examined. The presence or absence of the factors in Table 2.2 was examined for each case. Table 3.1 lists which factors were important in the 11 cases reviewed in Section I of this chapter. Authors of the case studies either attributed failure to the absence of these factors or success to their presence.
Findings are mostly consistent with the literature. The cases make no reference to the magnitude of stakeholder incentives. It was not possible to examine organization and centralization of the collaboration. None of the cases provided enough detail to enable identification of the collaboration strategy they used. Several of the subfactors in Table 2.2 are also not addressed in these cases. The other 9 major factors are cited with different frequencies. The relationship between the parties is mentioned as an important factor in 73% of the cases; stakeholder inclusion in 64%; decision-making structure and the availability of mediators during decision making in 45%; commitment in 36%; relevant professional and technical capacities and political support in 27%; leadership in 18%; and ripeness of the issue and funding in 9%.

It should be remembered, however, while evaluating these results, that this synthesis of the case studies does not permit systematic testing of all the determinants that are listed on Table 2.2. Which factors are more important cannot be concluded from these data because it is uncertain that the researchers who examined the particular cases looked at all the factors that are of interest for this research. The results suggest that the factors that were mentioned were important since they were identified by the case study authors but they do not say anything about the importance of the factors that were not mentioned, or the relative importance of the ones that have been identified.

Table 3.2 expands the list of determinants of success from Table 2.2 to include additional factors that were found in the cases but not found in the literature reviewed in Chapter 2. The shaded factors are the ones that come from the literature and were found important in the cases reviewed in Section I of this chapter, boldface factors were not included in the theoretical literature, but came up in the cases reviewed here.
Table 3.1. Determinants of Success Found in the Cases Examined*

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Member Factors</strong></td>
<td></td>
</tr>
<tr>
<td>· Stakeholder inclusion</td>
<td>✓</td>
</tr>
<tr>
<td>· Stakeholder incentives</td>
<td>✓</td>
</tr>
<tr>
<td>· Commitment of the collaboration participants</td>
<td>✓</td>
</tr>
<tr>
<td>· Effective leadership for the collaboration</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Process Factors</strong></td>
<td></td>
</tr>
<tr>
<td>· Ripeness of the issue / Timing</td>
<td></td>
</tr>
<tr>
<td>· Decision-making structure</td>
<td>✓</td>
</tr>
<tr>
<td>· Equity in decision making</td>
<td>✓</td>
</tr>
<tr>
<td>· Power distribution among the parties</td>
<td>✓</td>
</tr>
<tr>
<td>· Agreement on ground rules or decision-making process</td>
<td>✓</td>
</tr>
<tr>
<td>· <strong>Proportional representation</strong></td>
<td>✓</td>
</tr>
<tr>
<td>· Availability of mediators during decision making</td>
<td>✓</td>
</tr>
<tr>
<td>· Organization and centralization of the collaboration</td>
<td>✓</td>
</tr>
<tr>
<td>· Rank of the participating agency representatives</td>
<td>✓</td>
</tr>
<tr>
<td>· Degree of formalization of the collaboration</td>
<td>✓</td>
</tr>
<tr>
<td>· Level of resource commitment to the collaboration</td>
<td>✓</td>
</tr>
<tr>
<td>· Focus of power in the collaboration</td>
<td>✓</td>
</tr>
<tr>
<td>· Focus of control in the collaboration</td>
<td>✓</td>
</tr>
<tr>
<td>· Focus of collaboration goals</td>
<td>✓</td>
</tr>
<tr>
<td>· The relationship between the parties</td>
<td>✓</td>
</tr>
<tr>
<td>· Agreement on the scope of the collaboration</td>
<td>✓</td>
</tr>
<tr>
<td>· Shared ideology and common ground</td>
<td>✓</td>
</tr>
<tr>
<td>· Negotiating in good faith / Trust</td>
<td>✓</td>
</tr>
<tr>
<td>· Maintaining good relationships among participants</td>
<td>✓</td>
</tr>
<tr>
<td>· <strong>Establishing clear lines of communication</strong></td>
<td>✓</td>
</tr>
<tr>
<td>· <strong>Professional and technical capacities</strong></td>
<td>✓</td>
</tr>
<tr>
<td><strong>Resource Factors</strong></td>
<td></td>
</tr>
<tr>
<td>· Political support</td>
<td>✓</td>
</tr>
<tr>
<td>· Funding</td>
<td>✓</td>
</tr>
</tbody>
</table>

*unshaded, not boldfaced factors: found in theoretical literature only

shaded factors: found both in literature and in the cases reviewed in Chapter 3 Section I

boldface factors: not included in the theoretical literature, came up in the cases reviewed

Table 3.2. Determinants of Success Found in the Literature and in the Cases Examined*

<table>
<thead>
<tr>
<th><strong>Member Factors:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Inclusion of all affected stakeholders (intergovernmental participation)</td>
</tr>
<tr>
<td>• Magnitude of stakeholder incentives</td>
</tr>
<tr>
<td>• Commitment of the collaboration participants</td>
</tr>
<tr>
<td>• Effective leadership for the collaboration</td>
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</tbody>
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<table>
<thead>
<tr>
<th><strong>Process Factors:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ripeness of the issue / Timing</td>
</tr>
</tbody>
</table>
| • Decision-making structure  
  ⇒ Equity in decision making  
  ⇒ Power distribution among the parties  
  ⇒ Agreement on ground rules / Mutually agreed upon decision-making process  
  ⇒ Proportional representation |
| • Existence of mediators during decision making |
| • Organization and centralization of the collaboration  
  ⇒ Rank of the participating agency representatives  
  ⇒ Degree of formalization of the collaboration  
  ⇒ Level of resource commitment to the collaboration  
  ⇒ Focus of power in the collaboration  
  ⇒ Focus of control in the collaboration  
  ⇒ Focus of collaboration goals |
| • The relationship between the parties  
  ⇒ Agreement on the scope of the collaboration  
  ⇒ Shared ideology / common ground among participants  
  ⇒ Negotiating in good faith / Existence of trust in the relationships  
  ⇒ Maintaining good interpersonal relationships among participants  
  ⇒ Establishing clear lines of communication |
| • Relevant professional and technical capacities |

<table>
<thead>
<tr>
<th><strong>Resource Factors:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Political support</td>
</tr>
<tr>
<td>• Funding</td>
</tr>
</tbody>
</table>

*unshaded, not boldfaced factors: found in theoretical literature only
shaded factors: found both in literature and in the cases reviewed in Chapter 3 Section I
boldface factors: not included in the theoretical literature, came up in the cases reviewed
III. Conclusions

The review of collaborative natural resource management cases and the preceding literature review examine interorganizational collaboration and attempt to identify the determinants of success in such collaborations. This is an important issue because the need to collaborate in regional environmental management is well documented. Yet many efforts take years to bear fruit, and most of them do not achieve much. I believe this is due to poor understanding of the collaboration process and its elements. If this process and its components are thoroughly examined and the factors that lead to success are determined, it will help future collaboration efforts immensely. It will help identify processes which have a better probability of success based on the case circumstances. It can help identify the factors that impede successful collaboration so that strategies can be developed to mitigate them.

There is extensive literature on why organizations collaborate, but there is not much research done to identify the factors determining a successful collaboration effort. Yaffee et al. (1996) state that until their work there was not much research and knowledge about cooperative ecosystem management. Whether cooperative approaches to ecosystem management were having better results as opposed to competitive approaches was not known. Most of the limited information in the organization theory literature on what makes collaborations successful comes from research done for purposes other than determining factors that lead to success in a collaboration.

The synthesis presented in the previous section is based on secondary data. The cases selected are limited in the availability and accessibility of relevant data. In addition, these cases were researched and summarized by different authors and they were not designed to answer the questions posed in this particular research. Therefore the results cannot be conclusive about the relative importance of different factors.

Clearly, there is a need for additional research in this area. To add to the knowledge of this field, this research attempts to identify the factors that affect the success of interorganizational collaboration using quantitative analysis of data from a set of collaborative natural resource management cases. The following chapter details the hypotheses that are tested and the methodology that is used in the research.
CHAPTER 4
HYPOTHESES AND METHODOLOGY

The research question this dissertation attempts to answer is “What are the determinants of success in interorganizational collaboration in natural resource management?” A review of the literature in Chapter 2 found that the success of collaborative planning and decision making initiatives is dependent on member factors, process factors, and resource factors. Member factors are related to the participants in the collaboration, process factors are related to discretion over the process of collaborating, and resource factors are factors beyond the control of the collaboration participants. The research design includes a mail survey of collaborative natural resource management planning initiative participants. The unit of analysis is the collaborative management initiative.

This chapter details the methodology that is used to determine which of these factors are important for the success of collaborations. First an overview of the methodology used in comparable studies is given, then the hypotheses of the study are listed, followed by a description of the survey design and administration. Next the dependent and independent variables are introduced. Finally the analytic methods used in this study are described in the data analysis section. The following section reviews the methods used in comparable studies.

I. Overview of Methodology in Comparable Studies

Most of the information on the subject, as are the examples in Chapter 3 Section I, comes from detailed descriptions of case studies (Abrams et al., 1995; Beatley, 1995a; Finder, 1995; Haygood, 1995; McCrea and Adams, 1995; Meyers et al., 1995; Salvesen, 1995; Salvesen and Porter, 1995; and MacKenzie, 1996) or from “case survey” studies “in which the authors
systematically coded information from previously written case studies” (Beierle and Konisky, 2000: 587).

One drawback of relying on secondary data gathered from case studies is the incomparability of the cases. This kind of data is gathered by different people reflecting each individual’s biases. In addition, the same questions would not have been asked. The analysis in Chapter 3 Section II relies on this method and therefore is only useful to point out what factors are found to be significant. But this approach does not provide conclusive outcomes about what is not identified as significant. The factors that are not listed as significant in a particular case might not have been analyzed for that case.

Yaffee et al.’s (1996) research on cooperative ecosystem management includes a list of more than 600 projects and provides detail on 105 selected projects. Their main concern, however, was not to identify the determinants of success. They gathered data using telephone interviews and mail surveys for an assessment of ecosystem management cases. Wondolleck and Yaffee’s more recent work on collaboration in resource and environmental management (2000) draws from a database of several hundred case studies to offer information on how to make collaboration work. Their insights, while very useful, do not go beyond proposing advice based on the specific lessons learned from the cases they have studied. They do not use a systematic approach of examining particular factors that they hypothesize would have an effect on the success of a collaborative initiative.

Margerum’s successive studies (1999, 2002) rely on case studies from the United States and Canada as well as a survey of stakeholders. These studies conclude with a list of critical elements to integrated environmental management success and frequencies of inhibitors and facilitators of success. Schuett et al.’s (2001) study on keys to successful collaboration in natural resource management relies on surveys of 671 participants of 30 collaborative initiatives with the Forest Service. This study categorizes respondents’ comments into 6 categories of keys to successful collaboration. None of these studies provide any statistical analysis about the relationship between these elements and success.

Gray (1985) points to the necessity to do comparative analysis in order to understand the relative contribution of determinants of success. Gunton et al. (2003: 21) emphasize the need for more research that focuses on “a large set of cases across different jurisdictions using a uniform methodology employing objective criteria as well as survey based stakeholder perceptions.”
Beierle and Konisky (2000) evaluate public participation in 29 environmental planning case studies in the Great Lakes using the “case survey” method. They argue that the public participation literature offers advice on how to design effective programs but that there is little systematic testing of what makes some programs successful while others fail. They propose that this testing “requires applying a consistent evaluating framework to a variety of public participation cases” (p. 588). This is the approach I apply for evaluating the success of interorganizational collaboration. This requires examining the same variables across a variety of collaborative natural resource management cases.

A project that was conducted simultaneously with this one from the University of California, Davis, uses a comparable method looking at a similar topic. The Watershed Partnerships Project (WPP) (2002: 1) examines stakeholder based planning and management to “understand the factors affecting the ability of partnerships to resolve resource management controversies within the watershed.” The ongoing study collects data on 80 watershed partnership cases through interview of key participants, analysis of relevant documents, and survey of all participants and knowledgeable non-participant observers using the same framework across cases to collect data on the dependent variable of success and factors that explain success. The partnerships they studied had to include at least one state or federal official, at least one local government official and at least two opposing interests. While similar in many points with this study, WPP is different in the sense that it focuses on stakeholder partnerships (Leach et al., 2002) rather than on interorganizational collaboration.

For this study, groups of natural resource management cases with similar characteristics are surveyed with the aim of identifying the determinants of success for interorganizational collaboration. The next section presents the hypotheses of the study.

II. Hypotheses

The main hypothesis of this research is that success of an interorganizational collaboration is a function of member factors, process factors, and external factors.

\[ \text{Success of an interorganizational collaboration} = f (\text{member factors, process factors, external factors}) \]

Three general hypotheses are stated, each of which contains sub-hypotheses based on the components of the factors that influence interorganizational collaboration. These general hypotheses and their subparts are as follows:
Hypothesis 1: The success of collaborative planning and decision making initiatives is a function in part of several attributes of the members of the collaboration:

1a: Inclusion of all affected stakeholders
1b: Sufficiently high stakeholder incentives
1c: Commitment by the members to reaching agreement on the plan or policy
1d: Active leadership by one or more members to move the collaborating parties toward agreement on a plan or policy that meets the objectives of the parties

Hypothesis 2: The success of collaborative planning and decision making initiatives is a function in part of several attributes of the collaboration process:

2a: Ripeness of the issue
2b: Equity in decision making roles
2c: Equity of power distribution among the parties
2d: A mutually agreed upon decision-making process/structure
2e: Proportional representation
2f: Availability of mediators during crisis points in decision making
2g: Rank of the participating agency representatives
2h: Extent of rule formality in the collaboration process
2i: Level of resource commitment to the collaboration by participants
2j: Focus of power in the collaboration
2k: Focus of control in the collaboration
2l: Focus of collaboration goals
2m: Agreement on the scope of the collaboration
2n: Shared ideology / common ground among participants
2o: Negotiating in good faith / Existence of trust in the relationships
2p: Maintaining good interpersonal relationships with participants
2q: Open lines of communication
2r: Existence of relevant professional and technical capacities

Hypothesis 3: The success of collaborative planning and decision making initiatives is a function in part of several resource factors external to the collaboration process:

3a: Political support for the collaboration
3b: Adequate funding of the planning process

Figure 4.1 shows the conceptual framework of the study.

III. Survey Design and Administration

In this section the survey method that was used in this study is detailed. A mail survey was conducted of knowledgeable individuals who were instrumental in convening or participated in a collaborative planning effort in natural resource management. The following sections detail
the unit of analysis, how the sample frame was drawn, the kinds of questions the survey instrument includes, and the administration of the survey.

1. Unit of Analysis

Whom to survey for each case is a difficult question to answer. In these kinds of research budget limitations force many researchers to rely on the most knowledgeable person, the coordinator of the program or the representative of the convening agency. The obvious objections to the representativeness of the opinions of the coordinator/convener have been confirmed in several studies. In the Watershed Partnerships Project, Leach (2002: 643) found that “in 26 to 56 percent of partnerships, surveying only the coordinator\(^1\) would have resulted in an inaccurate estimate of the perceptions of the average respondent.” Compared to other participants, coordinators rate their partnership as more successful, trust the other participants

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\(^1\) Leach (2002: 648) defines coordinators as “anyone who is chiefly responsible for facilitating a group discussions or for handling the administrative needs of the partnership.”
more, and hold stronger pro-environmental values. Leach (2002) advises avoiding reliance only on the coordinator especially when data on subjective information is collected.

The ideal is to survey one representative for each party in each case, as was done in the WPP, to get an impartial and complete view of the case. However, this research has insufficient funding to survey the average of eight to ten parties involved in each case. Because of time and budget constraints only a limited number of surveys could be mailed. As a result, if each party identified in each case were surveyed, with a limited budget and limited number of surveys to be mailed, the total number of cases that were surveyed would have to be decreased. Because of this, this study relies on surveying representatives of three to four groups that were involved in the planning process of each initiative. The unit of analysis is the collaboration initiative not the respondents to the survey.

The selection of the parties to be surveyed for each case was based on the representativeness of the type of organizations that participate in the collaboration as identified in Question 1 (see Appendix A). Ideally there should be representatives of government, nonprofit and private groups among survey respondents for each collaborative plan. However, because the set up of different natural resource management initiatives is different, not all cases involve all types of groups. If a case involved both government, private, and nonprofit participants, two different levels of government and one of each of the other groups were selected for surveying. If the collaboration did not involve private and nonprofit participants, another different level of governmental unit was substituted instead.

Some of the people surveyed represent a convening agency. Ideally this person would be a neutral, impartial convener/mediator. However, in most of the cases the convener is likely to be an interested party who has a stake in the outcome of the collaboration. The survey includes a question to determine whether or not the informer/convener is also an interested party (see Appendix, question number 3).

Leach (2002) claims that the views of knowledgeable observers that did not participate in the process should also be included to get a complete portrait. He found that compared to participants, observers tend to hold more extreme views on the partnership’s success in achieving its goals and the amount of interpersonal trust within the partnership. However, he adds that participants have a higher tendency to express extremely positive or negative perceptions resulting in an exaggerated amount of conflict of opinion. These two results are
contradictory. Either way, the discrepancy between the opinions of the participants and the observers could well be the result of better information on the part of the participants. Several people declined to respond to the survey in this study because they did not participate in the process and, therefore, were not knowledgeable enough to reply to the survey questions.

2. Sample Frame

An important issue in conducting this kind of an analysis is to decide when it is appropriate to expect outcomes that should be evaluated to assess the success of a collaborative initiative. It is necessary in the selection of the sample to be realistic about the time required to get members to work together, particularly in a large collaboration. Everything requires more time than one might expect for a collaboration to occur and give results (Gray, 1989). However, this study focuses on the collaboration process itself rather than the outcomes. As a result it is not necessary for the collaboration to have yielded tangible outcomes to be included in the survey. Collaboration processes that have endured long enough to be evaluated are included. Planning initiatives that are still in the process of plan making or revision but have produced some decisions that may not be finalized are included.

Yaffee et al. (1996) identified a list of more than 600 collaborative ecosystem management cases for their study. Other cases were also found with a review of the relevant literature (Gunderson et al., 1995; MacKenzie, 1996; Porter and Salvesen, 1995). However, the selection processes for these cases are not clear. Contacting representatives from some of the cases identified by Yaffee et al. (1996) revealed that some of those initiatives were not collaborative after all, while others never materialized into a planning/management effort. In addition, the wide variety of the cases makes it impossible to find common ground among most to make them comparable.

To draw from a more systematic series of cases, this research studies initiatives from the following six natural resource management programs: (1) Remedial Action Plan development under the Great Lakes Water Quality Agreement, (2) the National Estuary Program of the United States Environmental Protection Agency Office of Water, (3) the National Oceanic and Atmospheric Administration’s National Marine Sanctuary Program, (4) Habitat Conservation Plan (HCP) development under the Endangered Species Act (ESA), (5) the Surface Water Improvement and Management Program of Florida Water Management Districts, and (6)
National Estuarine Research Reserves administered by the National Oceanic and Atmospheric Administration. Because the survey instrument relies on the memories of the respondents, only collaborative plans made or revised since January 1997 are included in the sample frame. Brief descriptions of these programs including the numbers of cases in each program follow.

i. Remedial Action Plans of the Great Lakes Water Quality Agreement

The Great Lakes Remedial Action Plan Program was created in 1987, when it was formalized in Annex 2 of the Great Lakes Water Quality Agreement. Remedial Action Plans are collaborative plans aimed to improve the water quality of 43 Areas of Concern (AOC) around the Great Lakes designated by the International Joint Commission in 1987. Out of the 43 AOCs, 26 are entirely within the United States, 12 are entirely in Canada, and 5 are shared by both countries (U.S. EPA, 2000). The RAPs involve federal, state, provincial and local governments, and local communities. Each Canadian RAP has a Public Advisory Committee (Environment Canada, 2000). Annex 2 of the agreement requires Remedial Action Plans to be developed and implemented for Areas of Concern and states that “The Parties [Government of Canada and the Government of the United States of America], in cooperation with State and Provincial Governments, shall ensure that affected State and Provincial Governments not now covered by this Agreement will be involved in the development of such plans and consulted on their implementation” and that “the public is consulted in all actions undertaken pursuant to this Annex.” (U.S. EPA, 2003a).

With the delisting of Collingwood Harbour in November 1994 and Severn Sound in January 2003 as an Area of Concern (Environment Canada, 1999), Remedial Action Plans currently are being prepared and/or implemented in the remaining 41 AOCs. The focus of the survey is the process of preparation and revision process of these RAPs. A list of these has been compiled from a search on the websites of the related agencies. The U.S. EPA has assigned RAP liaisons for each AOC, similarly RAP coordinators have been appointed for the Canadian RAPs. Most of the coordinators are affiliated with the Ministry of Environment, Ministry of Natural Resources, or Environment Canada, EPA’s corresponding agency in Canada. Contact

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2 See Chapter 3, Section I.4. for details.
3 For U.S. AOCs see http://www.epa.gov/glnpo/aoc/.
   For Canadian AOCs see http://www.on.ec.gc.ca/glimr/raps/areas-concern.html.
4 http://www.epa.gov/glnpo/aoc/rapliaisons.html.
information for the other participants were collected from these RAP liaisons and coordinators for the survey. For the five joint cases both the U.S. and the Canadian contacts were mailed surveys. All liaisons/coordinators are stakeholders that have an interest in the outcome of the collaboration.

ii. National Estuary Programs of the U.S. EPA Office of Water

The National Estuary Program (NEP) is a collaborative process “established in 1987 by amendments to the Clean Water Act (33 U.S.C. 1251-1387) to identify, restore and protect nationally significant estuaries of the United States” (U.S. EPA Office of Water, 2000: 1). The NEP program is administered by the U.S. EPA, but program decisions and activities are carried out by committees that include federal, state, and local government representatives, and members of the community including citizens, business leaders, educators, and researchers who “work together to identify problems in the estuary, develop specific actions to address those problems, and create and implement a formal management plan to restore and protect the estuary” (U.S. EPA Office of Water, 2000: 1).

Section 320 of the Clean Water Act U.S. requires EPA to convene a management conference for estuaries included in the program (U.S. EPA, 2003b). The conference is charged with developing a comprehensive conservation and management plan and should include representatives of (1) each State and foreign nation located in whole or in part in the estuarine zone of the estuary for which the conference is convened; (2) international, interstate, or regional agencies or entities having jurisdiction over all or a significant part of the estuary; (3) each interested Federal agency, as determined appropriate by the Administrator; (4) local governments having jurisdiction over any land or water within the estuarine zone, as determined appropriate by the Administrator; and (5) affected industries, public and private educational institutions, and the general public, as determined appropriate by the Administrator.

The survey focuses on the process of developing Comprehensive Conservation and Management Plans (CCMP) for each NEP. A list of the 28 National Estuary Programs\(^5\) and contact information of the director of each NEP\(^6\) was collected from the website of the U.S. EPA Office of Water. The information gathered shows that the directors can be from any of the

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\(^5\) [http://www.on.ec.gc.ca/glimr/raps/contact.html](http://www.on.ec.gc.ca/glimr/raps/contact.html).

\(^6\) [http://www.epa.gov/owow/estuaries/list.htm](http://www.epa.gov/owow/estuaries/list.htm).
stakeholder groups that have an interest in the outcome. CCMPs were completed in 15 of the NEPs before January 1997, and therefore were excluded from the sample.

iii. National Marine Sanctuary Program of NOAA

Title III of the 1972 Marine Protection, Research and Sanctuaries Act (16 U.S.C. 1431-1445) authorized the Secretary of Commerce to designate and manage areas of the marine environment with nationally significant aesthetic, ecological, historical, or recreational values as National Marine Sanctuaries. During reauthorization of the act in 1992, Title III was renamed the National Marine Sanctuaries Act (NOAA, 2000b). The National Marine Sanctuary Program created by the act aims to “serve as the trustee for the nation’s system of marine protected areas, to conserve, protect, and enhance their biodiversity, ecological integrity, and cultural legacy” (NOAA, 2000a) and is managed by the National Ocean Service of NOAA (Morin, 2001). In addition, the sanctuary managers are charged with the challenge of “accommodat[ing] multiple uses of the resources while satisfying the primary objective of resource protection” (Ostrom and Gittings, 1996: 4).

Thirteen sanctuaries have been designated so far and several federal, state, and local regulatory agencies have jurisdiction over the areas covered by the sanctuaries. NOAA administers the National Marine Sanctuary Program according to management plans prepared for each sanctuary that “set priorities, contain regulations, present existing programs and projects, and guide the development of future activities” (Channel Islands National Marine Sanctuary, ND: 2). The act requires development of a draft management plan for each proposed sanctuary and review and revision of the plan at 5 year intervals after the designation to reflect information and experience gained through sanctuary operations and the latest scientific discoveries, marine management policies, and resource protection issues (NOAA, 2002). Sanctuary Advisory Councils, which may include representatives from residents, local governments, tourism, education, business, and the environmental community, participate in all phases of the management plan revision process (Gray’s Reef National Marine Sanctuary, ND). They are also responsible for enhancing collaboration among agencies and organizations focused on managing coastal resources (Morin, 2001).

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7 [http://www.epa.gov/owow/estuaries/contact.htm#nep](http://www.epa.gov/owow/estuaries/contact.htm#nep)
The focus of the survey for this research is the latest management plan revision process. Contact information for the sanctuaries was obtained from the NOAA website\(^8\) and the name and address of the other parties were obtained from each sanctuary manager or coordinator.

iv. Habitat Conservation Plans of the Endangered Species Act

The U.S. Fish and Wildlife Service (1998: 32) defines a HCP under section 10(a)(2)(A) of the ESA (16 U.S.C. 1531-1544) as “a planning document that is a mandatory component of an Incidental Take Permit application ... to ensure that the effects of the authorized incidental take will be adequately minimized and mitigated to the maximum extent practicable.” Depending on the species involved the applicants for an Incidental Take Permit prepare HCPs with U.S. FWS or the National Marine Fisheries Service. The plans are labeled as “cooperative, creative and innovative partnerships” that bring together diverse groups of people (U.S. Fish and Wildlife Service, 1998: 7). Public, private, and non-profit groups collaborate. The HCP process includes federal, state, and local governments, development interests, and environmentalists.

There are some variations in the HCPs in terms of their geographical scope, number of species, and application by the particular U.S. FWS district responsible for preparing the plan. In terms of scope, the plans range from a single parcel or landowner to large areas involving many landowners and multiple governmental jurisdictions (Beatley, 1995b). For the purposes of this research a collaborative effort was described as one that involved more parties than the regulatory agency and the landowner. However, most of the HCP permit applications involve a single species and a single landowner. There are no other governmental entities or parties involved. In addition, contact with the seven U.S. Fish and Wildlife regional offices to get necessary information for the survey revealed that some districts used the collaborative approach more often than others. Two regions that had a large share of the total permits issued (Regions 1 and 2) differed greatly in their approach. Region One (Pacific Region), which includes California, Idaho, Nevada, Oregon, Washington, Hawaii and the Pacific Islands, used the collaborative approach much more frequently than Region Two (Southwest Region) which includes Arizona, New Mexico, Oklahoma, and Texas. Most of the permit applications from the state of Texas, which comprised the bulk of the Southwest Region’s applications, involved a single species and a single landowner. The landowners did not have the capacity to prepare the

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\(^8\) [http://www.sanctuaries.nos.noaa.gov/oms/oms.html](http://www.sanctuaries.nos.noaa.gov/oms/oms.html)
permit applications (HCP) themselves so the FWS office prepared them. There were no other governmental entities involved (Dawn Whitehead, FWS, e-mail communication, February 8, 2001). As a result, the number of plans that could be included in this study is much lower than the total number of plans prepared and permits issued. The reasons indicated for the non-collaborative attitude were inadequate funding and hostility towards government intervention on private lands.

The U.S. Fish and Wildlife Service (2003) reports that as of November 03, 2003, 435 Habitat Conservation Plans had been approved, with 221 amendments, making a total of 679 permits. Permits for 225 cases out of this total were issued between January 1997 and May 2001. The HCP database (U. S. Fish and Wildlife Service, 2003) provides information on the location, involved agencies, and FWS region for each plan. The contact information was completed by matching these plans with HCP region representatives who were surveyed about the preparation process of the HCPs.

v. Surface Water Improvement and Management Plans

The 1987 Surface Water Improvement and Management program (SWIM) of the state of Florida (Florida Statutes, Chapter 373.453) is aimed at eliminating non-point source water pollution in 29 priority water bodies through implementation of plans developed to restore damaged ecosystems and prevent pollution from runoff and other sources (State of Florida, 2000). The statute enables Florida’s five water management districts and the Department of Environmental Protection, who are directly responsible for the SWIM program, to develop surface water improvement and management plans and programs for the water bodies identified on the priority lists in cooperation with state agencies, local governments, and others (The Florida Senate, 2003). The Florida Department of Environmental Protection requires the plans to be updated every three years. The survey focuses on the latest revisions of the SWIM plans. However, there were significant differences between the levels of collaboration utilized by each water management district in Florida for making/updating SWIM plans. There was more collaboration in the initial plan preparation process than the revision. In some cases if the changes were minor, groups did not even come together for the revision but made the updates through the mail (T. Macmillan, personal communication, April 19, 2001). Minor updates included changing schedules and funding tables.
vi. National Oceanic and Atmospheric Administration National Estuarine Research Reserves

The National Estuarine Research Reserve System was established by Section 315 of the Coastal Zone Management Act of 1972 (16 U.S.C. 1451-1465) as a partnership program between the National Oceanic and Atmospheric Administration and the coastal states. NOAA provides funding and national guidance. Each reserve is managed on a daily basis by a lead state agency or university, with input from local partners (NOAA, 1996). The purpose of establishing what were initially called “estuarine sanctuaries” was to augment the federal coastal zone management program. The coastal states managing the reserves gather scientific information through research and monitoring programs to aid in this task. The reserves are research areas that represent different types of estuaries and biogeographical regions across the United States (Wenner and Geist, 2001).

Currently there are 26 reserves. Every reserve is required by federal regulation to have a NOAA-approved management plan. These plans are the focus of this project. 15 C.F.R. 921 requires the state and NOAA to hold a scoping meeting (pursuant to NEPA) in the area or areas most affected to solicit public and government comments on the significant issues related to the proposed action early in the development of the draft management plan and the draft EIS (NOAA, 2003).

3. Survey Questions

The major research objective is to identify the determinants of success for interorganizational collaborations. The survey includes three sections: (1) questions about the background of the collaborative case; (2) a section on outcome/ performance evaluation; and (3) another section that focuses on the factors that influence the success of the collaboration.

The survey is devised to assess both subjective and objective measures of success. The participants are asked what factors they think affected the success of the collaborative effort. This open-ended question provides the subjective measurement. To obtain an objective measure of success, questions are asked concerning the realization of goals, durability of the agreement, enhanced interorganizational relations, satisfaction of the collaboration participants, resource efficiency, and time efficiency of the collaboration.

In addition the respondents are asked to rate the extent to which a series of success determinants were present in each case. Specific questions are concerned with the inclusion of
all affected stakeholders, sufficiency of stakeholder incentives, commitment of participants, leadership, ripeness of the issue, decision-making structure, availability of mediators during decision making, organization and centralization of the collaboration, the relationship between the parties, existence of relevant professional and technical capacities, political support and funding.

For decision-making structure, questions asked include equity in decision making, power distribution among the parties, mutually agreed upon decision-making processes and ground rules, and proportional representation. Measures of organization and centralization of the collaboration are devised from Table 1.1 including questions about the rank of the participating agency representatives, the formality of rules in the collaboration process, the level of resource commitment to the collaboration, the focus of power in the collaboration, the focus of control in the collaboration, and the focus of collaboration goals. The relationship between the parties is evaluated by examining agreement on the scope of the collaboration, shared ideology among participants and common ground among professional disciplines, negotiation in good faith and existence of trust in the relationships, maintenance of good interpersonal relationships among participants, and establishing clear lines of communication. Survey questions can be found in Appendix A.

4. Administration of the Survey

The survey was pretested to make sure that the questions were understood correctly, the questions were measuring the variables they were intended for and the categories in closed-ended questions were exhaustive. Additional considerations during pretesting were the length of the survey and whether it left a positive impression motivating people to answer it. Dillman (1978) suggests pretesting on three groups of people: colleagues, potential users of the data, and a sample of the actual population to be surveyed. The first group included the dissertation committee, the second group fellow Ph.D. candidates, and a pretest sample was drawn from the population for an actual mail pretest. Fowler (1984) suggests a minimum of ten to twenty
respondents representing the range of education and life situations of the survey sample to be pretested. In this research 12 pretest questionnaires were mailed generating 6 responses.9

Both Dillman (1978) and Fowler (1984) recommend that the pretest be performed face to face to make sure the reactions of the respondents to the questions and the questionnaire are observed. Because of the geographical diffuseness of the collaboration initiatives across the U.S. this was not possible for this study. Instead, the pretest was mailed.

The full survey was administered in four waves as advised by Dillman (1978) to maximize the response rate. Approximately two weeks after the initial mailing a postcard reminder was sent to everyone thanking the people that responded and reminding the ones who had not. Four weeks after the postcard a second letter and a replacement questionnaire were mailed to nonrespondents. Three months after the third wave the same was repeated. Dillman (1978) points out that this last mailing should generate responses from one third of the remaining people if done by certified mail. He reports that in a specialized population like this, the average response rate is 77 %. Due to budget restraints certified mail was not used in this study. The data collection took place between October 29, 2002 and May 20, 2003. The time frame was changed slightly from the one recommended by Dillman (1978) to give more time to get contact information of the other parties from program coordinators which proved to be a very slow and time-consuming task. In addition, some of the individuals recommended by the coordinators declined to participate informing the researcher that they were not involved in the process. New contact information needed to be collected to replace these with respondents that work on comparable organizations with the non-respondent, lengthening the data collection process. Additional time was also given due to limited budget in the hopes that more responses would be received and decrease mailing costs of the last wave.

IV. Variables

1. Dependent Variables

The dependent variable of success is derived from the measures of success shown in Table 4.1 which are based on criteria of success derived from the collaboration literature (see

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9 The 12 pretests included 1 RAP, 1 NEP, 1 NMS, and 9 HCPs. The other two case types were added to the study after the survey was pretested. The 6 responses included 1 RAP, 1 NMS and 4 HCPs. One HCP declined to respond because the plan was not collaborative in the sense defined for this study.
Table 2.1). Success is based on an aggregation of the outcome variables listed on Table 4.1. The dependent variable is a constructed index of the variables that are measured on the same scale. Index construction creates new variables from a combination of several variables and is used when several questions measure a complex concept. Weisberg et al. (1996) claim that this strategy gives better results than when only a single question is used to measure a variable since the result will be less dependent on the wording of particular questions.

### Table 4.1. Dependent Variables

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Survey Question Number</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Realization of goals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Achieving each party’s goals</td>
<td>9</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Capacity-building of organizations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Acquisition of new resources (technology, labor, funds, or equipment)</td>
<td>10a</td>
<td>Interval</td>
</tr>
<tr>
<td>☐ Acquired knowledge, information, or expertise</td>
<td>10b</td>
<td>Interval</td>
</tr>
<tr>
<td>☐ Acquired knowledge that resulted in new decision-making structures and/or processes</td>
<td>10c</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Whether the outcome resolves the real issues in dispute</td>
<td>11</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Conformance of the solution to available objective standards</td>
<td>12</td>
<td>Interval</td>
</tr>
<tr>
<td>• Durability of the agreement</td>
<td>7-8</td>
<td>Interval</td>
</tr>
<tr>
<td>• Enhanced interorganizational relations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Improved communication among collaboration participants</td>
<td>16a</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Improved working relationships among collaboration participants</td>
<td>16b</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Building trust and respect among collaboration participants</td>
<td>16c</td>
<td>Interval</td>
</tr>
<tr>
<td>• Satisfaction of collaboration participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Overall satisfaction of the participants</td>
<td>17</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Do the parties feel they affected the substance of the plan?</td>
<td>18</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Does the agreement produce joint gains for the parties?</td>
<td>19</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Willingness of the stakeholders to implement the decision</td>
<td>20</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Equity in the outcomes</td>
<td>21</td>
<td>Interval</td>
</tr>
<tr>
<td>• Efficiency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Resource efficiency</td>
<td>22</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Time efficiency</td>
<td>22</td>
<td>Interval</td>
</tr>
</tbody>
</table>
Among alternative ways of constructing an index Weisberg et al. (1996) describe additive indices and Guttman scaling. Additive indices are constructed by simply adding up each person’s scores on the separate variables that measure the same construct. For example, in their evaluation of the influence of state mandates on the content and quality of comprehensive plans of local governments, Berke and French (1994) conducted a content analysis of local plans. They summed the individual scores from the 56 items to construct eleven summary indices. In their analysis of local planning for hazard mitigation in the presence or absence of state mandates, Burby and May (1997) also use summated-rating scales for index construction. To demonstrate the validity of the index Burby and May test it with Chronbach's alpha. This test of inter-item reliability measures the average correlation of all items under analysis (DiLeonardi and Curtis, 1988).

The additive index method has the disadvantage that out of the several variables that are being added for the index the combination of any two might give a score of two. For example, among the choices of apples, oranges, and bananas, apple + orange, apple + banana, and orange + banana will all give a score of two. The problem Weisberg et al. (1996) see with this is that different variables may be tapping wholly different concepts. As a result the same score might not mean the same thing. This would occur if the index is measuring two different underlying concepts or dimensions. Two publications based on parts of the same project apply another method for index construction: averaging the individual item scores of ratings (Berke and French, 1994; Burby and May, 1997). For example, to construct an index of goal clarity, Berke and French (1994) take the average ratings of vagueness, complexity, directness, specificity, and number. The disadvantage of this approach is that it assumes all components are of equal weight.

Guttman scaling is a method that helps to determine whether a set of variables is measuring a single concept or dimension (Weisberg et al., 1996) and is based on the hypothesis that if a respondent gives a strong indicator of some variable s/he will also give the weaker indicators (Babbie, 1998). Therefore, this method examines whether the categories in ordinal variables are perfectly cumulative: i.e. if the categories are perfectly unidimensional in the Guttman sense, the lowest category would be included in the next category which in turn would be included in the next highest category and so on. To evaluate whether the data fit this categorical pattern, the deviations from the pattern are counted as the number of errors and each observation is given a score based on the closest pattern they match. The proportion of total
number of responses that fit the valid patterns gives the coefficient of reproducibility. A value of 1.00 for this coefficient means perfect reproducibility. Weisberg et al. (1996) state that a 0.95 reproducibility score is necessary for a good scale. If the data satisfy this requirement, the categories can be combined without problem. Guttman scaling assumes that if the responses do not fit a cumulative pattern they are not measuring the same concept or dimension, therefore they should not be combined into a Guttman scale. In cases where the responses do not fit a cumulative pattern, it may be possible to construct two separate dimensions. At other times, dropping a variable that is not cumulative may make sense. There is no theoretical reason for anticipating the use of Guttman scaling for the data in this research: i.e. the categories in ordinal variables are not expected to be perfectly cumulative and unidimensional in the Guttman sense.

As an alternative to these methods Miller (1991) suggests that factor analysis can be used to construct indices that can be used as new variables later in the analysis. Factor analysis consists of a variety of statistical techniques that are used as data reduction techniques to identify variables that measure the same concept. First the inter-correlations between the directly measured set of variables are examined. Factor analysis helps to determine whether the correlations observed among the variables can be explained by the existence of a small number of hypothetical source variables. The source variables are called factors (Kim and Mueller, 1978a). The underlying idea is to identify a small number of factors in common that account for the intercorrelations within a large number of variables (Miller, 1991). The advantage of this method is that it can be used even if the categories of an ordinal variable are not unidimensional in the Guttman sense.

Depending on the fit of the data one or more of these index construction techniques could potentially be used to define dependent variables from the measures described in Table 4.1. An aggregate index of success is constructed from the objective dependent variables listed in the table taking their arithmetic average. Additionally, indices are created for the four major categories (realization of goals, satisfaction of collaboration participants, enhanced interorganizational relations, and efficiency) by taking the arithmetic averages of their components. Finally, principal component analysis is used to group the objective dependent variables into components.

Because only variables that are measured on the same scale can be combined to construct an index, the questions for measuring the dependent variables are all based on the same interval
scale (see Table 4.1). For the operationalization of the dependent variables refer to the Appendix A “Interorganizational Collaboration Survey.” Survey question numbers are included in Table 4.1 to indicate the specific question for each variable.

2. Independent Variables

The independent variables shown in Table 4.2 are derived and synthesized from the literature reviewed in Chapter Two and the case studies reviewed in Chapter Three (see Table 3.2). For each variable a question is asked about the extent to which the factor was present in the collaborative initiative. The operationalization of these variables is included in Appendix A as well. Table 4.2 includes the survey question numbers to indicate the specific question for each variable.

V. Data Analysis

The survey includes both open-ended and closed questions. Open-ended questions are exploratory. An example of a question about subjective determinants of success is “What factors affected the success of this collaboration in your opinion?” These are not part of the causality test but are used to identify factors that did not come up in the literature or the cases analyzed in this study. They may be used in a future study. To minimize bias as a result of the factors provided to the respondents in the closed questions, the questions are ordered in the survey instrument in a way to ask the open-ended questions before providing respondents the list of factors in the closed-ended questions (see Appendix A).

The data collected are analyzed using statistical methods to see which determinants of success are significant in interorganizational collaborations. The research methodology includes a linear regression analysis of the mail survey data. As Leach et al. (2002) point out, only a multivariate analysis can reveal the relative importance of the many determinants that affect collaboration success. The dependent variables of success include interval variables and/or index variables constructed from interval measures. One of the methods used to construct the indices is factor analysis. The next section describes the procedures that were used in this study.
Table 4.2. Independent Variables

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Survey Question Number</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Member Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Inclusion of all affected stakeholders (intergovernmental participation)</td>
<td>23a</td>
<td>Interval</td>
</tr>
<tr>
<td>• Magnitude of stakeholder incentives</td>
<td>23b</td>
<td>Interval</td>
</tr>
<tr>
<td>• Commitment of the collaboration participants to the collaboration process</td>
<td>23c</td>
<td>Interval</td>
</tr>
<tr>
<td>• Effective leadership for the collaboration</td>
<td>23d</td>
<td>Interval</td>
</tr>
<tr>
<td><strong>Process Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ripeness of the issue / Timing</td>
<td>23e</td>
<td>Interval</td>
</tr>
<tr>
<td>• Decision-making structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Equity in decision making</td>
<td>23f</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Power distribution among the parties</td>
<td>23g</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Agreement on ground rules / Mutually agreed upon decision-making process</td>
<td>23h</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Proportional representation</td>
<td>23i</td>
<td>Interval</td>
</tr>
<tr>
<td>• Availability of mediators during crisis points in decision making</td>
<td>23j</td>
<td>Interval</td>
</tr>
<tr>
<td>• Organization and centralization of the collaboration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Rank of the participating agency representatives</td>
<td>27</td>
<td>Nominal</td>
</tr>
<tr>
<td>⇒ Degree of formalization of the collaboration</td>
<td>25</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Level of resource commitment to the collaboration</td>
<td>26</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Focus of power in the collaboration</td>
<td>28</td>
<td>Ordinal</td>
</tr>
<tr>
<td>⇒ Focus of control in the collaboration</td>
<td>29</td>
<td>Ordinal</td>
</tr>
<tr>
<td>⇒ Focus of collaboration goals</td>
<td>30</td>
<td>Ordinal</td>
</tr>
<tr>
<td>• The relationship between the parties</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Agreement on the scope of the collaboration</td>
<td>23k</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Shared ideology / common ground among participants</td>
<td>23l</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Negotiating in good faith</td>
<td>23m</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Existence of trust in the relationships</td>
<td>23n</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Maintaining good interpersonal relationships among participants</td>
<td>23o</td>
<td>Interval</td>
</tr>
<tr>
<td>⇒ Establishing clear lines of communication</td>
<td>23p</td>
<td>Interval</td>
</tr>
<tr>
<td>• Relevant professional and technical capacities</td>
<td>23r</td>
<td>Interval</td>
</tr>
<tr>
<td><strong>Resource Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Political support</td>
<td>24a</td>
<td>Interval</td>
</tr>
<tr>
<td>• Funding</td>
<td>24b</td>
<td>Interval</td>
</tr>
</tbody>
</table>
1. Data Reduction Using Factor Analysis

Factor analysis is a general term used for a variety of different but related data reduction techniques that examine the relationships between a large number of observed variables and group a smaller set of these variables into dimensions that have common characteristics (Pett et al., 2003). *Exploratory* factor analysis techniques are used to explore the interrelationships among a set of variables and attempt to determine how many underlying constructs - called “factors” - are present. They rely on “mathematical (nonsubstantive) criteria, such as explaining the highest percentage of variance inherent in the original set of variables” (Bernstein, 1987). There are an infinite number of mathematically equivalent factor solutions, however, theoretically alternative solutions are not equally meaningful.

Of the available exploratory techniques, *Principal Component Analysis* (PCA) is used in this research to reduce the large number of correlated variables to a smaller number of uncorrelated factors - called “components” in PCA - that can then be used in further analysis.\(^{10}\) The components are linear combinations of the measured variables. The linear function that defines the principal component is referred to as an *eigenvector* and is similar to a multiple regression equation without an intercept term (Bryant and Yarnold, 1995). If the eigenvectors are uncorrelated, the principal components are perpendicular to each other, in other words, none of the variance of the set of original variables explained by one eigenvector can be explained by the other.

i. Assumptions of Factor Analysis/Data Requirements

Factor analysis requires a set of correlated *continuous variables* and *linear correlations* among the variables. Moreover, an examination of the data in terms of *sample size* and *strength of correlations* is necessary to determine its suitability for factor analysis. *Outliers* can affect the results of factor analysis (Pallant, 2001). *Normality* of the data distribution is not mentioned as a requirement for PCA in many of the texts consulted (Comrey and Lee, 1992; Bryant and Yarnold 1995; Pallant, 2001; Stevens, 2002). Tabachnick and Fidell (2000: 588) state that for purposes of “summariz[ing] the relationships in a large set of observed variables” normality is not critical.

\(^{10}\) The term component is used for factor when used in the context of PCA. Since Principal Component Analysis is a type of Factor Analysis sometimes terms factors and components are used interchangeably. The same holds true for this document.
However, for determination of the number of factors that underlie the variables under examination using statistical inference, multivariate normality is assumed.

Sample size is important for the reliability of the factors (Stevens, 2002). Generally factor analysis works well with large samples that include at least 150 cases. However, Tabachnick and Fidell (2000: 588) maintain that if there are “strong, reliable correlations and a few, distinct factors a smaller sample size is adequate.” Another way of looking at whether the sample size is adequate for factor analysis is by examining the ratio of cases to variables called the Subjects-to-Variable (STV) ratio. While 10 cases for each variable is recommended, 5 cases are considered adequate in most instances (Pallant, 2001). But the ratio ranges from 2 cases per variable to 20 in the literature (Stevens, 2002). Lawley and Maxwell (1971) mention a significance rule that requires 51 more cases than the number of variables to support chi-square testing. In their analysis of the watershed partnerships literature Leach and Pelkey (2001) identify 210 lessons learnt from 37 studies, which they group into 28 thematic categories. They perform factor analysis on the 28 themes with the n of 37 studies.

Three tests are used to determine the adequacy of the strength of the intercorrelations among the variables for factor analysis. These tests include an inspection of the bivariate correlation coefficients, Bartlett’s Test of Sphericity, and the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy. The first test requires at least some bivariate correlation coefficients greater than 0.3 (Pallant, 2001). The Kaiser-Meyer-Olkin index, which ranges from 0 to 1, should have a minimum value of 0.60 for the data to be adequate for factor analysis. According to Kaiser a KMO value in the 0.80s is “meritorious” and in the 0.70s is “middling” (Pett et al., 2003: 78). Bartlett’s test of sphericity tests whether the null hypothesis that variables in the population correlation matrix are uncorrelated can be rejected. Especially in small sample sizes of around 100 it is very important to perform this test before Principle Component Analysis (Stevens, 2002). Bartlett’s test of sphericity should be statistically significant at p<0.05 level (Pallant, 2001).

Mahalanobis Distance, a measure of how much a case’s values for a set of variables differ from the average of all cases, is used to identify multivariate outliers. A large Mahalanobis distance identifies a case as having extreme values on one or more of the variables. Both Hair et al. (1998) and Tabachnick and Fidell (2000) advise using a very conservative probability estimate of p<0.001 as the threshold for designating a case as an outlier. As a further test of
outliers Garson (2003) suggests setting a dummy variable to 1 for cases with high Mahalanobis Distances and then regressing this dummy on all variables in the set. If this regression model is not significant the outliers are random and can be retained.

ii. The Determination of the Number of Factors

Principal Components Analysis transforms a set of correlated variables into an equal number of uncorrelated and standardized variables called components (Lawley and Maxwell, 1971). A smaller number of these components will account for most of the variance (75 percent or more) in the original set of variables. Stevens (2002) claims that this can usually be achieved with five components or less. However, the total variance of the variables is accounted for only when all components are extracted (Lawley and Maxwell, 1971).

Two techniques are generally used to decide the number of factors to retain for further investigation: (1) Kaiser’s criterion and (2) Catell’s scree test. Kaiser’s criterion calls for retaining only factors with an eigenvalue of 1.0 or more. The eigenvalue of a factor represents the amount of the total variance of the original variables explained by that factor. An eigenvalue of 1 indicates that the variance explained by a factor is equivalent to the variance explained by a single standardized variable (Bryant and Yarnold, 1995), meaning that Kaiser’s test considers a component important “if, and only if, it accounts for at least as much variance as an individual variable does” (Bernstein, 1987). The larger the eigenvalue, the more of the variance in the original variables is explained by that component (Pett et al., 2003). The percentage of the total variance explained by each component is calculated by dividing the eigenvalue by the total variance (the sum of the eigenvalues),¹¹ (Stevens, 2002) and multiplying it by 100.

Pallant (2001) warns that in some situations using Kaiser’s criterion may result in retaining too many factors. Stevens (2002) states that Kaiser’s criterion is fairly accurate in identifying the correct number of factors if the number of variables is small or moderate (10-30) and the communalities¹² are high (>0.70). Stevens (2002:389) mentions several studies that evaluate the accuracy of the eigenvalue >1 criterion in which “the authors determined how often

¹¹ The total variance for a correlation matrix equals the number of diagonal elements, which equals the number of variables (Bernstein, 1987).
¹² The communality of a variable is the amount of variance in the variable accounted for by a set of factors (Stevens, 2002). Mathematically it is the sum of the squared factor loadings for a variable on all the extracted factors. The value ranges from 0 to 1.00, with higher values indicating that the extracted factors explain more of the variance of the original variables (Pett et al., 2003).
the criterion would identify the correct number of factors from matrices with a known number of factors.” Gross overestimation has been observed only when large numbers of variables (40) and low communalities (<0.40) are present at the same time.

*Catell’s scree test* requires inspection of a plot of the eigenvalues of the factors against their ordinal numbers (whether it is the first largest eigenvalue, the second etc.) to determine the breaking point at which the steep descent stops and the shape of the curve changes direction and becomes horizontal. Catell recommends retaining all factors above the “elbow,” since “these factors contribute the most to the explanation of the variance in the dataset” (Pallant, 2001: 154). However, Stevens (2002) warns that use of the Scree plot involves a danger of not retaining factors that might be significant even though they account for a smaller amount for variance.

The *percentage of variance* criterion suggests retaining successive factors until some specified amount of total variance, which ranges between 70-80 percent in the literature, has been explained (Bryant and Yarnold, 1995; Stevens, 2002). Bryant and Yarnold (1995) also mention the *a priori* criterion which is used when the researcher is attempting to replicate the results of prior research and has an idea on how many eigenvectors to extract in advance. The use of this last criterion is directed by theory and may not be possible in many exploratory factor analysis situations in which no prior research or theory exists.

Pett et al. (2003) suggest that the decision of how many factors to extract should not be based solely on statistical criteria but should also make theoretical sense. The results of several factor analysis solutions with different numbers of specified factors extracted can be examined and compared to see which solution makes the most theoretical and intuitive sense. Pett et al. (2003) suggest that the ultimate criteria for determining the number of factors should be factor interpretability and usefulness.

Pett et al. (2003: 125) cite Nunnally and Bernstein (1994) as stating that “if the extracted factors serve to describe characteristics that variables have in common, then, by definition, there need to be at least two items [variables] for each extracted factor.” In other words, there should be no variable specific components.
iii. Interpretation of the Factors

The output of a PCA includes a table showing the Pearson correlation coefficients among the input variables and the output components called \textit{factor loadings}$^{13}$ of the variables on the components, or, alternatively, as the loadings of the components in the variables (Lawley and Maxwell, 1971). The interpretation of the components is based on the magnitude and sign of the factor loadings (Stevens, 2002). “The sizes of the loadings reflect the extent of the relationship between each observed variable and each factor” (Tabachnick and Fidell, 2000: 584-5). The interpretation involves “identify[ing] the theoretical dimension that is implied by the pattern of the variables that are the most important constituents of each eigenvector” (Bryant and Yarnold, 1995: 102), i.e those with the highest, positive factor loadings.

Factors are rotated to present the pattern of loadings in a manner that is easily interpreted. Two types of rotation approaches are common. The\textit{ orthogonal approach} assumes that the resulting components are not correlated. It is not only the most commonly used method, but also the easiest to interpret. \textit{Oblique rotations} assume that the factors are correlated and they are more difficult to interpret (Pallant, 2001). Pedhazur and Schmelkin (1991 cited in Stevens, 2002) suggest rotating both orthogonally and obliquely. If the oblique rotation shows that the correlations among the factors are negligible it is safe to use orthogonal solutions which are easier to interpret.

In this analysis one of the orthogonal approaches, \textit{Varimax} rotation technique, is used. The varimax procedure “focuses on making as many values in each column of the factor loading coefficient table be as close to zero as possible” (Bryant and Yarnold, 1995: 105). The distribution of the variance explained is adjusted after rotation, but the total variance explained does not change (Pallant, 2001). If the results show a \textit{simple structure}, each variable loads strongly on only one component (salient variables), and each component is represented by a number of strongly loading variables. In addition, each variable should have a loading that is nearly zero on at least one component and each component should contain more than one variable whose loadings are nearly zero. Bernstein (1987) points out that in many real-world situations the Principal Component solution does not meet the simple structure criteria.

$^{13}$ Squaring a factor loading gives the proportion of the variance in an individual variable that is explained by that particular component and the eigenvalue of a principal component is equal to the sum of the squared factor loadings on that component (Pett et al., 2003).
Stevens (2002) suggests using loadings which are about 0.40 or greater for interpretation. This would result in an at least 15 percent shared variance between the variable and the component. Bernstein (1987) and Comrey and Lee (1992) put this limit at 0.30, indicating a 10 percent shared variance between the variable and the component. Comrey and Lee (1992) define variables that share 20 percent of the variance with the component (0.45 loading) as fair, 30 percent (0.55 loading) as good, 40 percent (0.63 loading) as very good, and 50 percent (0.71 loading) as excellent. They claim that a more definitive interpretation of the factor can be achieved if several items have very good or excellent loadings on a specific factor.

iv. Generating Factor Scores

After deciding which variables to include for each factor a composite score for each observation on each identified factor can be generated. Two basic approaches in doing this include calculation of factor scores and construction of factor-based scales (Pett et al., 2003). A factor score for a case is estimated by using a linear combination of the items that load on the factor. In the factor-based scale approach, on the other hand, scores on each factor are obtained by adding or taking the average of the variables that have been selected for inclusion in a given factor. The advantage of this approach is the fact that the items that load very low on a factor (<0.30) and items that have been moved to another factor can be excluded from calculations. The disadvantage is that this method ignores the weights of the items that load on a factor. Factor scores usually include all items in the variable pool including the ones that load very low. However, there are factor score estimation methods that use only those items that load above a certain cut-off value.

This study uses a third approach suggested by Comrey and Lee (1992) which involves weighting the scores of a variable by its factor loading when constructing a factor-based scale. This approach has the advantage of giving a higher weight to variables with higher loadings on the factor. The authors advise scaling the raw scores for all variables to the same mean and standard variation before adding the scores for the selected variables so that variations in raw score standard deviations do not result in uneven weights for variables in determining factor scores. However, this is unnecessary if the standard deviations of the raw scores of the variables are reasonably similar.
2. Regression Analysis on Factor Scores

The initial regression model that is tested is as follows:

- **Member factors**
- **Process factors**
- **External factors**

A central tendency measure of the three responses is used for case level analysis. The interval scale of the measurement makes taking a mean of the three responses an appropriate strategy.

The analysis attempts to identify whether certain characteristics of the cases affect the impact of the determinants of success. The number of parties (which is calculated from question number 1 in Appendix A), the geographic scale of the case (multi-state/single-state), and a diversity measure are used as control variables. *The diversity of types of parties* is measured by the number of different types of organizations the collaboration involves (derived from responses to Question 1: federal government agency, state government agency, local or regional government agency, private corporation or individual, non-profit organization, individuals not affiliated with an organization and university). The success function based on this is as follows:

\[
CS = f [MF, PF, EF, C]
\]

CS = Collaboration success  
MF = Vector of member factor variables  
PF = Vector of process factor variables  
EF = Vector of external factor variables  
C = Vector of control variables

The next chapter includes the quantitative analysis of the determinants of success in interorganizational collaboration followed by a chapter on the analysis of the open-ended questions on the measures and determinants of success.
CHAPTER 5
WHAT MAKES COLLABORATIONS WORK?
EMPIRICAL ANALYSIS

This chapter presents the results of the quantitative data analysis of the determinants of success for interorganizational collaboration. After providing background information on the nature of the cases and the respondents, measurement scales and data preparation procedures are explained. Next descriptive statistics, bivariate correlations, and factor analysis results are presented first for the measures of success (dependent variables) and then the determinants of success (independent variables). The final section of the chapter provides an analysis of the determinants of success including bivariate correlations between the dependent and independent variables as well as multiple regression results.

I. Background Information on the Cases and the Respondents

The survey yielded a response rate of 60 percent in four waves. A total of 168 survey instruments representing 70 planning initiatives were returned. The response rates for different case types were remarkably similar for most case groups: National Marine Sanctuaries and National Estuarine Research Reserves 56 percent, Remedial Action Plan and National Estuary Program 57 percent, Habitat Conservation Plans 63 percent, and Surface Water Improvement and Management Plans 72 percent. The slightly higher response rates of the last two categories might be due to more reliable contact information gathered solely from the coordinators before mailing the surveys. This was not always possible for the other categories.

1 Individuals who communicated that they were not involved in a particular collaboration effort were dropped from the sample in calculating the response rate. A total of 279 surveys were mailed.
The unit of analysis is a collaborative planning initiative, not the individual respondent, resulting in an initial data set of 70 observations. Thirty-four percent of the initiatives were Remedial Action Plans, 14 percent were Comprehensive Conservation and Management Plans for National Estuary Program, 5 percent were Management Plans for National Marine Sanctuaries, 16 percent were Habitat Conservation Plans prepared under the Endangered Species Act, 21 percent were Surface Water Improvement and Management Plans, and 10 percent were Management Plans for National Estuarine Research Reserves. In 89 percent of the cases the plans were completed and in 11 percent they were still in preparation. Fifty-eight percent of the cases involved initial preparation of a plan, while 42 percent involved the revision of an existing plan.

An examination of the geographic scale of the natural resource that is the focus of the collaborative planning initiative showed that 5 percent of the initiatives were multinational, 8 percent were multi-state, 50 percent were single-state, multi-jurisdiction, and 37 percent were prepared within a single local government jurisdiction. The number of organizations involved in each collaborative initiative ranged from 3 to 52 with a mean of 17 organizations. The diversity of the groups measured by the number of different types of organizations involved in the initiative (federal, state/provincial, regional and local governments, private corporations, national, regional or local non-profits, universities and native tribes) ranged from 2 to 9 with 40 percent having 5 or fewer different types of groups and 60 percent having 6 to 9 types of groups with a mean of 6 different types of organizations.

Sixty-four percent of the respondents represented a government agency, 15 percent a private group, and 21 percent non-profit organizations and universities. Four percent of the respondents described themselves as a neutral convener who had no stake in the outcome, 65 percent as an interested convener who had a stake in the outcome, and 31 percent as an interested party but not the convener. Almost all the respondents stated that the parties have collaborated with each other before: 53 percent said some of the parties have collaborated with each other before, 36 percent said most of the parties have collaborated with each other before, and 10 percent stated all the parties had collaborated with each other before.

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2 This total includes the survey instruments with unanswered questions as well as outlier cases that later had to be excluded from the analysis. However, the following statistics reflect the characteristics of the final dataset of n = 62 used in the analysis. The excluded cases are discussed in a later section. Appendix B includes a list of the cases that were surveyed.
percent said all of the parties have collaborated before. Only 0.6 percent of the respondents said none of the parties have collaborated with each other before.  

II. Measurement Scales and Data Preparation

In addition to the above background information the survey collected information on two sets of variables. One set included questions regarding outcome/performance evaluation to determine how successful a planning initiative was and the second set focused on the factors that influence the success of the collaboration. The survey questions used to gather the data for this study were designed to minimize the necessity of data preparation for analysis. All 18 questions used to measure the dependent variables and 21 of the 25 questions relating to the independent variables were measured with an interval scale and could be readily used in the analysis (see Tables 6 and 7). However, the organization and centralization of the collaboration variable, measured through the six dimensions identified by Mulford and Rogers (1982) included four dimensions measured with nominal or ordinal scales in addition to two interval scale questions (Questions 25-30, Appendix A). Further discussion of this variable can be found in the Hypothesized Determinant of Success section below.

Most of the measures are based on a seven point Likert scale in which 0 is the extreme low and 6 is the maximum score. For some variables a modified version of the same scale was used with values ranging between -3 and 3 (see questions 16 and 17 in Appendix A). These were later converted into the same 0 to 6 scale for easy comparison.

Some may object to the treatment of the Likert scale used in the survey as an interval scale. However, Tabachnick and Fidell (1996: 7) define this type of variable as one “that changes values smoothly rather than in steps” and “continuous variables take on any value within the range of that scale, and the size of the number reflects the amount of the variable”. De Vaus (2002: 41) lists three characteristics of an interval level variable: (1) it consists of values that can be expressed in numerically meaningful terms; (2) the numerical values of an interval level variable are organized in order; and (3) since the values are numerically meaningful, the amount of difference between cases with different values can be specified.

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3 Since these last three statistics relate to individual respondents rather than the cases these statistics come from the full data set (N=168) before outliers and cases with missing values were taken out and multiple responses for each case were combined.
The scale used in this study fits with these descriptions. A score of 3.5 is as meaningful as a score of 4 when only the extreme ends of the scale are defined. Furthermore, the distinction between continuous and discrete variables, and as such, interval and nominal/ordinal scales is not always clear. Discrete variables maybe used in multivariate analysis “if there are numerous categories and the categories represent a quantitative attribute” (Tabachnick and Fidell, 1996: 7). According to (Tabachnick and Fidell, 1996) what is required for multivariate analysis is not so much an interval scale, but other attributes of the variable that come with it, such as the shape of distribution. To ensure that the data in this study fit with the requirements and the assumptions of the two multivariate analysis techniques used (principal component analysis and ordinary least squares liner regression) all the appropriate tests were applied. The results are presented in the appropriate sections of this chapter.

Multiple respondents from each initiative were surveyed to get a more objective view on the case. As a result a single score needed to be generated for each case based on the multiple responses. The arithmetic mean was used for interval variables and the median was used for ordinal variables. SPSS 11.0 for Windows was used for data analysis.

III. Measures of Success

Of the dependent variables durability of the agreement was intended to be measured through two questions (numbers 7 and 8 in Appendix A). There were some measurement errors in question 8. In addition, the responses that were valid showed no variability, i.e. all the plans were still in use. This may be due to the time frame used in the survey. Plans made since 1997 were the subject of this research. Due to the measurement error and lack of variability, this variable had to be discarded.

---

4 Eleven percent of the cases had 4 respondents, 39 percent had 3 respondents, 40 percent had 2 respondents and 10 percent had one respondent.

5 Some respondents obviously thought of the original plan rather than the revision they were surveyed about while answering question 8, resulting in a longer time frame for the plan to be in use than the amount of time that had passed since its completion. In addition, some plans did not take effect immediately, resulting in a time gap between their completion and implementation. Obviously, none of these incidents necessarily indicate that the agreement was less durable.
1. Descriptive Statistics

The means and standard deviations of the rest of the dependent variables are displayed in Table 5.1. The standard deviations ranging between 0.70 and 1.60 suggest reasonable variation in the responses. Means mostly on the higher end of the scale (with the exception of acquisition of resources and acquisition of knowledge), as well as the frequency results displayed in Table 5.2 illustrate that the cases that were examined can be considered quite successful according to the criteria identified in Section I.3. Scores less than 3 indicate a low level of support, 3 indicates a medium level and scores higher than 3 indicate a high level of support for the variable.

Figure 5.1 shows the percentage of cases that earned scores above the midpoint of 3. As shown in the figure, in over 90 percent of the cases respondents agreed that they had achieved most of their goals; the solution conformed to available objective standards; the agreement produced joint gains for the parties; the parties were willing to implement the decision; and respondents thought that there was equity in the outcomes; the collaboration enhanced interorganizational relations; and they were satisfied with the process. In over 80 percent of the cases respondents agreed that they had acquired knowledge, information or expertise and felt that they had affected the substance of the plan. In addition, in over 70 percent of the cases respondents agreed that resources were used efficiently. In more than 60 percent of the cases respondents agreed that the outcome resolved the real issues in dispute, and that time was used in an efficient manner.

Only two outcome variables measuring capacity building were scored highly for less than 50 percent of the cases: (1) acquisition of new resources such as technology, labor, funds, or equipment and (2) acquisition of knowledge that resulted in new decision making structures and/or processes. Collaborative planning did not lead to these kinds of capacity building in most of the cases. This can be explained by the particular kinds of cases and planning involved.

Table 5.3 shows the bivariate correlations among the dependent variables, some of which are quite highly correlated with each other. The three enhanced relations variables are correlated at the 0.80 to 0.89 level and the two efficiency variables are correlated at the 0.75 level. The bivariate correlations among the satisfaction variables range from 0.33 to 0.70. Some of the variables under realization of goals are not correlated with each other at all or show weak correlations. However, within this group, the three variables that measure capacity building are
correlated at the 0.41 to 0.48 level. The results demonstrate sufficient support for the theoretical groupings made before data collection and the use of aggregate indices.

Table 5.1. Dependent Variable Descriptive Statistics

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Question Number</th>
<th>Scale</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome Variables:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Realization of goals</td>
<td>9</td>
<td>0 to 6</td>
<td>4.47</td>
<td>0.83</td>
</tr>
<tr>
<td>⇒ Achieving each party’s goals</td>
<td>10</td>
<td>0 to 6</td>
<td>2.52</td>
<td>1.60</td>
</tr>
<tr>
<td>✔ Capacity-building of organizations</td>
<td>10</td>
<td>0 to 6</td>
<td>4.31</td>
<td>1.02</td>
</tr>
<tr>
<td>✔ Acquired knowledge, information, or expertise</td>
<td>10</td>
<td>0 to 6</td>
<td>3.03</td>
<td>1.39</td>
</tr>
<tr>
<td>✔ Acquired knowledge that resulted in new decision-making structures</td>
<td>11</td>
<td>0 to 6</td>
<td>3.74</td>
<td>0.85</td>
</tr>
<tr>
<td>✔ Whether the outcome resolves the real issues in dispute</td>
<td>12</td>
<td>0 to 6</td>
<td>4.58</td>
<td>0.80</td>
</tr>
<tr>
<td>• Enhanced interorganizational relations</td>
<td>16</td>
<td>-3 to 3</td>
<td>1.89</td>
<td>0.70</td>
</tr>
<tr>
<td>⇒ Improved communication among collaboration participants</td>
<td>16</td>
<td>-3 to 3</td>
<td>1.86</td>
<td>0.75</td>
</tr>
<tr>
<td>⇒ Improved working relationships among collaboration participants</td>
<td>16</td>
<td>-3 to 3</td>
<td>1.81</td>
<td>0.90</td>
</tr>
<tr>
<td>• Satisfaction of collaboration participants</td>
<td>17</td>
<td>-3 to 3</td>
<td>1.87</td>
<td>0.82</td>
</tr>
<tr>
<td>⇒ Overall satisfaction of the participants</td>
<td>18</td>
<td>0 to 6</td>
<td>4.47</td>
<td>0.84</td>
</tr>
<tr>
<td>⇒ Do the parties feel they affected the substance of the plan?</td>
<td>19</td>
<td>0 to 6</td>
<td>4.71</td>
<td>0.78</td>
</tr>
<tr>
<td>⇒ Does the agreement produce joint gains for the parties?</td>
<td>20</td>
<td>0 to 6</td>
<td>4.60</td>
<td>0.85</td>
</tr>
<tr>
<td>⇒ Willingness of the stakeholders to implement the decision</td>
<td>21</td>
<td>0 to 6</td>
<td>4.54</td>
<td>0.86</td>
</tr>
<tr>
<td>• Efficiency</td>
<td>22</td>
<td>0 to 6</td>
<td>3.90</td>
<td>1.03</td>
</tr>
<tr>
<td>⇒ Resource efficiency</td>
<td>22</td>
<td>0 to 6</td>
<td>3.43</td>
<td>1.10</td>
</tr>
</tbody>
</table>
Table 5.2. Collaboration Success Scores

<table>
<thead>
<tr>
<th>Variables Used to Measure Success</th>
<th>Percentage of cases scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low (&lt;3)</td>
</tr>
<tr>
<td>• Realization of goals</td>
<td></td>
</tr>
<tr>
<td>⇒ Achieving each party's goals(^i)</td>
<td>3.2</td>
</tr>
<tr>
<td>⇒ Capacity-building of organizations(^ii)</td>
<td></td>
</tr>
<tr>
<td>✷ Acquisition of new resources (technology, labor, funds, or equipment)</td>
<td>59.7</td>
</tr>
<tr>
<td>✷ Acquired knowledge, information, or expertise</td>
<td>8.1</td>
</tr>
<tr>
<td>✷ Acquired knowledge that resulted in new decision-making structures and/or processes</td>
<td>48.4</td>
</tr>
<tr>
<td>⇒ Whether the outcome resolves the real issues in dispute(^iii)</td>
<td>11.3</td>
</tr>
<tr>
<td>⇒ Conformance of the solution to available objective standards(^iv)</td>
<td>3.2</td>
</tr>
<tr>
<td>• Satisfaction of collaboration participants</td>
<td></td>
</tr>
<tr>
<td>⇒ Do the parties feel they affected the substance of the plan?(^v)</td>
<td>3.2</td>
</tr>
<tr>
<td>⇒ Does the agreement produce joint gains for the parties?(^vi)</td>
<td>1.6</td>
</tr>
<tr>
<td>⇒ Willingness of the stakeholders implement the decision(^vii)</td>
<td>1.6</td>
</tr>
<tr>
<td>⇒ Equity in the outcomes(^viii)</td>
<td>3.2</td>
</tr>
<tr>
<td>• Efficiency</td>
<td></td>
</tr>
<tr>
<td>⇒ Resource efficiency(^ix)</td>
<td></td>
</tr>
<tr>
<td>⇒ Time efficiency(^ix)</td>
<td>11.3</td>
</tr>
<tr>
<td>• Enhanced interorganizational relations(^x)</td>
<td></td>
</tr>
<tr>
<td>⇒ Improved communication among collaboration participants</td>
<td>1.6</td>
</tr>
<tr>
<td>⇒ Improved working relationships among collaboration participants</td>
<td>3.2</td>
</tr>
<tr>
<td>⇒ Building trust and respect among collaboration participants</td>
<td>3.2</td>
</tr>
<tr>
<td>• Satisfaction of collaboration participants</td>
<td></td>
</tr>
<tr>
<td>⇒ Overall satisfaction of the participants(^xi)</td>
<td>3.2</td>
</tr>
</tbody>
</table>

\(^i\) 0 = None of our goals have been achieved; 6 = All of our goals have been achieved  
\(^ii\) 0 = None acquired; 6 = Much acquired  
\(^iii\) 0 = Resolved none of the real issues of concern; 6 = Resolved all of the real issues of concern  
\(^iv\) 0 = Do not conform at all; 6 = Conform completely  
\(^v\) 0 = No impact at all; 6 = Great impact  
\(^vi\) 0 = No party gains; 6 = All the parties gain  
\(^vii\) 0 = Not willing at all; 6 = Very willing  
\(^viii\) 0 = Not equitable at all; 6 = Very equitable  
\(^ix\) 0 = Very inefficient; 6 = Very efficient  
\(^x\) -3 = Deteriorated substantially; 0 = No effect; 3 = Improved substantially  
\(^xi\) -3 = Very dissatisfied; 0 = Neither satisfied nor dissatisfied; 3 = Very satisfied

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The study measures success in four different ways. One of them is a subjective measure of success that asks the respondents to rate the success of their effort on a 0 to 6 Likert Scale. The second is an aggregate index of success constructed from the objective dependent variables listed in Table 4.1 by taking an arithmetic average. Additionally, indices were created for the four major categories in Table 4.1 (realization of goals, satisfaction of collaboration participants, enhanced interorganizational relations, and efficiency) by taking the arithmetic average of their components. Finally, principal component analysis is used to group the objective dependent variables into categories.

Table 5.3 shows that there are substantial numbers of correlations over 0.3 among the variables, thus the magnitude of the correlations is sufficient for use in factor analysis. Bartlett’s test of sphericity is significant at the p = 0.000 level and the Kaiser-Meyer-Olkin index is 0.810. (see Chapter 4, Section V.1.i. for an explanation of these statistics).
### Table 5.3. Dependent Variable Bivariate Correlations (Pearson’s r)

<table>
<thead>
<tr>
<th>MEASURES OF COLLABORATION SUCCESS</th>
<th>Goal Achievement</th>
<th>Source Acquired</th>
<th>Information Acquired</th>
<th>Knowledge Acquired</th>
<th>Issue Resolved</th>
<th>Conformance to Standards</th>
<th>Communication Improvement</th>
<th>Relationship Improvement</th>
<th>Trust Improvement</th>
<th>Overall Satisfaction</th>
<th>Affected the Plan</th>
<th>Joint Gains</th>
<th>Willingness to Implement</th>
<th>Equity in the Outcomes</th>
<th>Resource Efficiency</th>
<th>Time Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal Achievement</td>
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<td></td>
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<tr>
<td>Source Acquired</td>
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</tr>
<tr>
<td>Information Acquired</td>
<td><strong>.481</strong></td>
<td></td>
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<tr>
<td>Knowledge Acquired</td>
<td><strong>.408</strong></td>
<td></td>
<td><strong>.416</strong></td>
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<tr>
<td>Issue Resolved</td>
<td><strong>.512</strong></td>
<td><strong>.287</strong></td>
<td></td>
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</tr>
<tr>
<td>Conformance to Standards</td>
<td><strong>.427</strong></td>
<td><strong>.299</strong></td>
<td><strong>.272</strong></td>
<td><strong>.427</strong></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication Improvement</td>
<td>.361**</td>
<td>.411**</td>
<td>.320*</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Relationship Improvement</td>
<td>.373**</td>
<td>.374**</td>
<td>.336**</td>
<td>.892**</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Trust Improvement</td>
<td>.326**</td>
<td>.255*</td>
<td>.338**</td>
<td>.417**</td>
<td>.801**</td>
<td>.887**</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Satisfaction</td>
<td>.372**</td>
<td>.333**</td>
<td>.306*</td>
<td>.460**</td>
<td>.673**</td>
<td>.771**</td>
<td>.762**</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Affected the Plan</td>
<td><strong>.387</strong></td>
<td>.306*</td>
<td>.271*</td>
<td>.275*</td>
<td><strong>.344</strong></td>
<td><strong>.338</strong></td>
<td>.325*</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Joint Gains</td>
<td><strong>.460</strong></td>
<td><strong>.284</strong></td>
<td>.272*</td>
<td><strong>.496</strong></td>
<td><strong>.488</strong></td>
<td><strong>.517</strong></td>
<td><strong>.435</strong></td>
<td><strong>.468</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willingness to Implement</td>
<td><strong>.377</strong></td>
<td>.296*</td>
<td>.272*</td>
<td><strong>.527</strong></td>
<td><strong>.511</strong></td>
<td><strong>.529</strong></td>
<td><strong>.526</strong></td>
<td><strong>.583</strong></td>
<td><strong>.486</strong></td>
<td><strong>.366</strong></td>
<td><strong>.704</strong></td>
<td></td>
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</tr>
<tr>
<td>Equity in the Outcomes</td>
<td><strong>.355</strong></td>
<td><strong>.458</strong></td>
<td>.271*</td>
<td><strong>.342</strong></td>
<td><strong>.385</strong></td>
<td><strong>.559</strong></td>
<td><strong>.445</strong></td>
<td><strong>.442</strong></td>
<td><strong>.517</strong></td>
<td><strong>.617</strong></td>
<td><strong>.498</strong></td>
<td><strong>.630</strong></td>
<td><strong>.681</strong></td>
<td><strong>.681</strong></td>
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</tr>
<tr>
<td>Resource Efficiency</td>
<td><strong>.327</strong></td>
<td><strong>.314</strong></td>
<td><strong>.381</strong></td>
<td><strong>.458</strong></td>
<td><strong>.522</strong></td>
<td><strong>.573</strong></td>
<td><strong>.340</strong></td>
<td><strong>.386</strong></td>
<td><strong>.491</strong></td>
<td><strong>.491</strong></td>
<td><strong>.491</strong></td>
<td></td>
<td></td>
<td><strong>.491</strong></td>
<td></td>
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</tr>
<tr>
<td>Time Efficiency</td>
<td><strong>.327</strong></td>
<td><strong>.314</strong></td>
<td><strong>.381</strong></td>
<td><strong>.458</strong></td>
<td><strong>.522</strong></td>
<td><strong>.573</strong></td>
<td><strong>.340</strong></td>
<td><strong>.386</strong></td>
<td><strong>.491</strong></td>
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<td></td>
<td><strong>.491</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* significant at .05 level  ** significant at .01 level

Shading shows the theoretical groupings of variables. Highlights show the correlations between variables that were grouped together in Principal Component Analysis: Pink: Component 1, Yellow: Component 2, Blue: Component 3, Green: Component 4.
2. Principal Component Analysis Results for the Dependent Variables

Before running the principal component analysis for grouping the variables the Mahalanobis Distance statistic for each case is calculated as follows for both measures of success and the determinants of success in order to identify the outliers: First a linear regression is run on any dependent variable\(^6\) with the “Save - Mahalanobis” option using the variables that will be factor analyzed as independent variables. The Mahalanobis D\(^2\) statistic is saved as a new variable (mah_1) in the dataset. Then the probability values for the Mahalanobis D\(^2\) are calculated using the following formula:\(^7\)

\[
p_{\text{mahal}} = 1 - \text{CDF.CHISQ}(\text{quant}, \text{df})
\]

Once the probabilities of Mahalanobis D\(^2\) are calculated, the data are sorted by the p_mahal variable to identify cases that are outliers based on the criterion of p<0.05. A Mahalanobis dummy was created and a value of 1 was assigned to the cases with p<0.05 listed in Table 5.4. Using this dummy as dependent variable, a linear regression was run for the set of variables we are interested in including in a factor analysis. This regression was significant at the p=0.000 level for the determinants of success indicating that the outliers have a high probability of interfering with factor analysis results. In addition, scatter plots of independent variables against the dependent variables were examined to see the cases that consistently showed as outliers.

Mahalanobis D\(^2\) could not be calculated for two cases (104 and 502) because of missing values and these cases were dropped from the sample reducing the n to 68. Based on the comparison of the scatter plots with the Mahalanobis D\(^2\) statistic, case 402,\(^8\) the only case with the significance level of p<0.001 recommended by both Hair et al. (1998) and Tabachnick and Fidell (2000), was confirmed as an outlier\(^9\) and excluded from further analysis.\(^10\) This was a

\(^6\) The choice of the dependent variable is not important because Mahalanobis Distance calculations involve only the independent variables. However, since in SPSS it is only calculated as a byproduct of regression analysis, a dependent variable needs to be specified.

\(^7\) CDF is a Cumulative Density Function in SPSS that returns the cumulative probability that a value from the chi-square distribution, with df degrees of freedom, will be less than quant, which indicates the value of the Mahalanobis Distance statistic.

\(^8\) See Appendix B for the list of case names.

\(^9\) An alternative way of identifying outliers is to compare Mahalanobis D\(^2\) values with \(\chi^2\) with degrees of freedom equal to the number of independent variables in the regression model used to generate the values at 0.001
Habitat Conservation Plan that involved a private company, the USFWS and the state Department of Fish and Game. Although the case fulfilled the selection criteria for intergovernmental collaboration with the involvement of more than one government agency it was different than the intergovernmental collaboration studied in this research and fit more with the HCPs that involve an incidental take permit applicant and the regulatory agency rather than true intergovernmental collaboration.

Table 5.4. Mahalanobis Distances for Apparent Outliers

<table>
<thead>
<tr>
<th>Case No</th>
<th>Mahalanobis Distance</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>104</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>502</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>402</td>
<td>46.08</td>
<td>0.000</td>
</tr>
<tr>
<td>118</td>
<td>35.74</td>
<td>0.005</td>
</tr>
<tr>
<td>404</td>
<td>33.78</td>
<td>0.009</td>
</tr>
<tr>
<td>303</td>
<td>33.43</td>
<td>0.010</td>
</tr>
<tr>
<td>509</td>
<td>32.88</td>
<td>0.012</td>
</tr>
<tr>
<td>409</td>
<td>30.61</td>
<td>0.022</td>
</tr>
<tr>
<td>305</td>
<td>29.71</td>
<td>0.029</td>
</tr>
<tr>
<td>411</td>
<td>29.33</td>
<td>0.032</td>
</tr>
<tr>
<td>306</td>
<td>28.75</td>
<td>0.037</td>
</tr>
<tr>
<td>103</td>
<td>28.51</td>
<td>0.039</td>
</tr>
<tr>
<td>501</td>
<td>28.01</td>
<td>0.045</td>
</tr>
</tbody>
</table>

Mahalanobis Distances were calculated for the dependent variables as well. The regression on the dependent Mahalanobis dummy variable was not significant. None of the cases were outliers based on the probability of Mahalanobis Distance <0.001 criterion. Based on these significance level (Tabachnick and Fidell, 2000). For independent variables $\chi^2 = 40.790$ confirming case 402 as the only multivariate outlier. For dependent variables $\chi^2 = 37.697$ so there are no outliers.

Factor analysis was run first using the full data set, then excluding the outlying case. The significant difference in the results further confirmed that the outlier case was significantly influencing the results. For example, 4 of the 17 variables loaded to different components when the outlier case was excluded.
and the scatter plots no additional cases were excluded as outliers. However, there were five more cases with missing values (305, 608, 611, 617, 619) that had to be excluded, reducing the n to 62. This is the final dataset used in the subsequent multivariate analyses including PCA and linear regression. The ratio of cases to variables is 4.13 and the difference between the number of cases and the number of variables is 47.\footnote{See Chapter 4, Section V.1.i. for an explanation of these statistics.}

In the Principal Component Analysis of the 15 dependent variables\footnote{Overall satisfaction was excluded from the final factor analysis solution after discovering it was grouped with the two efficiency variables. This did not theoretically make sense. In addition, the overall satisfaction measure can be seen as a subjective measure of satisfaction and it makes sense to use it as an individual dependent variable separate from the rest.} measured on interval scales, four components have eigenvalues over 1 explaining 40.4, 12.2, 10.8, and 7.9 percent of the total variance of the original variables respectively (Table 5.5). Using the Kaiser’s criterion is quite safe because none of the variables has a communality less than 0.40, and five of them have communalities more than 0.80. The scree plot shows a clear break after the second component and a second break is observed after the fourth component after which the curve levels off and becomes more horizontal (Figure 5.2). Since extracting more variables is useful in this case, Kaiser’s criterion, which coincides with the second break, is used.

An oblique rotation of the components using the Oblimin method showed correlations between components ranging between 0.177 and 0.358, significantly lower than the values on Table 5.4 which go as high as 0.892. As a result, the orthogonal Varimax rotation is used.

The four components together explain 71.2 percent of the variance. Although fewer variables load on components 3 and 4, they load quite strongly (loadings range from 0.702 to 0.907) (Table 5.6). The reliability analysis for the four components in this case shows small inter-item correlation variances (0.0126, 0.0021, 0.0013, and 0.0000) for the four components respectively), indicating high consistency among the inter-item correlations. The alpha coefficients are strong (0.8601, 0.9420, 0.6776, and 0.8549) indicating that 86, 94, 68, and 85 percent of the variance of the total scores on these subscales can be attributed to reliable, or systematic, variance respectively. Table 5.3 indicates the bivariate correlations between the dependent variables that are grouped together in different colored highlights. Two of the four averaged indices (relationship enhancement and efficiency) are composed of the same input
variables as the components, thus having the same inter-item correlations (0.0021 and 0.0000) and alpha coefficients (0.9420 and 0.8549). Comparatively the inter-item correlations of the other two averaged indices are higher (0.0322, and 0.0168) and alpha coefficients are weaker (0.6643, and 0.8432) indicating the groupings of the principal component analysis are slightly more reliable for index construction and scale building than the theoretical groupings.

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial Eigenvalues</th>
<th>Communalities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% of Variance</td>
</tr>
<tr>
<td>1</td>
<td>6.058</td>
<td>40.389</td>
</tr>
<tr>
<td>2</td>
<td>1.828</td>
<td>12.189</td>
</tr>
<tr>
<td>3</td>
<td>1.617</td>
<td>10.780</td>
</tr>
<tr>
<td>4</td>
<td>1.187</td>
<td>7.913</td>
</tr>
<tr>
<td>5</td>
<td>.793</td>
<td>5.284</td>
</tr>
<tr>
<td>6</td>
<td>.650</td>
<td>4.335</td>
</tr>
<tr>
<td>7</td>
<td>.579</td>
<td>3.862</td>
</tr>
<tr>
<td>8</td>
<td>.564</td>
<td>3.760</td>
</tr>
<tr>
<td>9</td>
<td>.491</td>
<td>3.275</td>
</tr>
<tr>
<td>10</td>
<td>.383</td>
<td>2.553</td>
</tr>
<tr>
<td>11</td>
<td>.279</td>
<td>1.862</td>
</tr>
<tr>
<td>12</td>
<td>.206</td>
<td>1.372</td>
</tr>
<tr>
<td>13</td>
<td>.187</td>
<td>1.244</td>
</tr>
<tr>
<td>14</td>
<td>.114</td>
<td>.761</td>
</tr>
<tr>
<td>15</td>
<td>.063</td>
<td>.420</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.

Interpretation of the components is mostly consistent with the theoretical framework developed in this study prior to data collection (Table 5.7). Component 1 includes three of six goal realization and four of five satisfaction variables from the original list (Table 4.1). When examined closely it can be seen that the four satisfaction variables are also goals the parties might have when engaging in collaboration. Therefore, this component can be called goal realization in the broad sense. Component 2 includes the three enhanced interorganizational relations variables, Component 3 includes the three capacity building variables from the original
larger set of goal realization variables, and Component 4 includes the two efficiency variables, and, therefore is named as such.

![Scree Plot for Dependent Variables](image)

**Figure 5.2. Scree Plot for Dependent Variables**

**IV. Hypothesized Determinants of Success**

As mentioned above, the variable for the organization and centralization of the collaboration modeled after Mulford and Rogers’ (1982) collaboration typologies includes four dimensions measured by nominal or ordinal scales in addition to two interval scale questions (Table 5.8). The variable used to describe the positions of the participants (see Question 27 in Appendix A) includes four categories that could be ranked ordinally and a fifth category for cases where participants held a mix of positions within their organizations. A sixth non-ordinal category did not receive any responses (see question 27 in Appendix A). Since this question is not measured on an ordinal scale some adjustments were made to take the medians of multiple respondents. The usual procedure for taking a median of an even number of observations
includes taking the arithmetic mean of the two observations in the middle. However, in cases that
had only the fifth category (the mix) and one of the others this would not give a meaningful
result since the fifth category was not ordinal. For these situations case-by-case determinations
were made for coding them as the category indicating the predominant representative status
rather than the mix.

Table 5.6. Rotated Component Matrix

<table>
<thead>
<tr>
<th>Component Loadings</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal achievement</td>
<td>.798</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Issue resolved</td>
<td>.767</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint gains</td>
<td>.695</td>
<td>.342</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willingness to implement</td>
<td>.661</td>
<td>.484</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conformance to standards</td>
<td>.634</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affected the plan</td>
<td>.569</td>
<td>.419</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equity in outcomes</td>
<td>.564</td>
<td>.391</td>
<td>.451</td>
<td></td>
</tr>
<tr>
<td>Relationship improvement</td>
<td></td>
<td>.917</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trust improvement</td>
<td></td>
<td>.864</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication Improvement</td>
<td></td>
<td>.857</td>
<td>.309</td>
<td></td>
</tr>
<tr>
<td>Knowledge acquired</td>
<td></td>
<td></td>
<td>.788</td>
<td></td>
</tr>
<tr>
<td>Info acquired</td>
<td></td>
<td></td>
<td>.742</td>
<td></td>
</tr>
<tr>
<td>Source acquired</td>
<td></td>
<td></td>
<td>.702</td>
<td></td>
</tr>
<tr>
<td>Resource efficiency</td>
<td></td>
<td></td>
<td></td>
<td>.907</td>
</tr>
<tr>
<td>Time efficiency</td>
<td></td>
<td></td>
<td></td>
<td>.871</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 5 iterations, absolute loadings less than 0.3 are suppressed.

Shadings identify loadings that are very good (>0.63) or excellent (>0.71) according to Comrey and Lee (1992).

As a result of the different scales of the six dimensions, determining the organization and
centralization category that each collaborative initiative fit required a case-by-case examination
of their scores on the six dimensions simultaneously. Several attempts were made to make an
overall determination of a collaboration strategy for each case. After determining the
collaboration strategy in which each case fell in for each dimension based on the survey
responses a score of 1 to 4 representing the four categories was given to each to convert the
measurements to the same scale (1 = cooperation, 2 = mutual adjustment, 3 = alliance, and 4 = corporate). The median of the scores on the six dimensions was then taken to give the case an overall score showing the category it fit best. For the cases that received a score of 5 on the nominal variable that dimension was excluded from the determination of the overall score since it did not contribute useful information. By taking this dimension out for cases that scored 5 that dimension was converted into an ordinal scale as well, thus making it possible to include it in taking medians. However, the resulting overall scores were correlated with only one of the 17 dependent variable measures and none of the aggregate indices.

Table 5.7. Four Components Extracted from 15 Dependent Variables

<table>
<thead>
<tr>
<th>Component 1: Goal realization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achieving each party’s goals (Realization of goals) (.798)*</td>
</tr>
<tr>
<td>Whether the outcome resolves the real issues in dispute (Realization of goals) (.767)</td>
</tr>
<tr>
<td>Does the agreement produce joint gains for the parties? (Satisfaction) (.695)</td>
</tr>
<tr>
<td>Willingness of the stakeholders to implement the decision (Satisfaction) (.661)</td>
</tr>
<tr>
<td>Conformance of the solution to available objective standards (Realization of goals) (.634)</td>
</tr>
<tr>
<td>Do the parties feel they affected the substance of the plan? (Satisfaction) (.569)</td>
</tr>
<tr>
<td>Equity in the outcomes (Satisfaction) (.564)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component 2: Enhanced interorganizational relations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved working relationships among collaboration participants (.917)</td>
</tr>
<tr>
<td>Building trust and respect among collaboration participants (.864)</td>
</tr>
<tr>
<td>Improved communication among collaboration participants (.857)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component 3: Capacity-building of organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition of knowledge that resulted in new decision-making structures and/or processes (.788)</td>
</tr>
<tr>
<td>Acquisition of knowledge, information, or expertise (.742)</td>
</tr>
<tr>
<td>Acquisition of new resources (technology, labor, funds, or equipment) (.702)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component 4: Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource efficiency (.907)</td>
</tr>
<tr>
<td>Time efficiency (.871)</td>
</tr>
</tbody>
</table>

* Values in parenthesis indicate the loading of that item on the component.

Although conceptually we would expect the scores on the six dimensions of the typology to be consistent within each collaborative initiative and correlated with each other, this was not
the case for the initiatives that are the focus of this study. Numerous cases have scores on three of the four categories of the Mulford and Rogers typology, showing characteristics of cooperation in some dimensions and alliance in other dimensions. As a result, the examination of the six dimensions as measured did not give meaningful empirical results in terms of identifying which of the four collaboration strategies each case used.

Table 5.8. Collaboration Continuum

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Question Number</th>
<th>Scale</th>
<th>Cooperation</th>
<th>Managed Mutual Adjustment</th>
<th>Coordination Alliance</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actors</td>
<td>27</td>
<td>Nominal</td>
<td>Lower ranking members (subordinates)</td>
<td>Professionals or staff members at the supervisory level</td>
<td>Administrators (agency heads) or professionals</td>
<td>Administrators</td>
</tr>
<tr>
<td>Formalization</td>
<td>25</td>
<td>Interval</td>
<td>No formal rules</td>
<td>Few rules</td>
<td>Negotiated rules</td>
<td>High formality</td>
</tr>
<tr>
<td>Resources</td>
<td>26</td>
<td>Interval</td>
<td>Minimal resources committed</td>
<td>Few resources committed</td>
<td>Medium level of resource commitment</td>
<td>Resource commitment high</td>
</tr>
<tr>
<td>Focus of power</td>
<td>28</td>
<td>Ordinal</td>
<td>Decentralized power, largely independent; little threat to autonomy</td>
<td>Decentralized power but interdependent</td>
<td>May or may not use central administrative unit</td>
<td>Centralized power</td>
</tr>
<tr>
<td>Focus of control</td>
<td>29</td>
<td>Ordinal</td>
<td>Informal trade offs and reciprocity in the absence of rules</td>
<td>Reliance on informal norms and benefits for agencies</td>
<td>Interagency systems decisions may have to be ratified</td>
<td>Interagency systems decide regulations that represent collective interest</td>
</tr>
<tr>
<td>Goals</td>
<td>30</td>
<td>Ordinal</td>
<td>Vague, individual organizations’ goals</td>
<td>Primary focus on agency goals</td>
<td>Agency goals and collective goals</td>
<td>Collective goals stressed</td>
</tr>
</tbody>
</table>


Additionally, principal component analysis was performed to examine whether these six dimensions were caused by one underlying factor (organization and centralization of the
However, only two bivariate correlations among the six dimensions were significant and they both had correlation coefficients lower than 0.3, not adequate strength for factor analysis. Bartlett’s test of sphericity was not statistically significant at the p<0.5 level, and the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.597, barely satisfying the suggested minimum value of 0.6 for the data to be adequate for factor analysis.

Based on the results of the examination of the dimensions, bivariate correlations, and factor analysis the use of the Mulford and Rodgers typology to classify the cases had to be abandoned because no overall meaningful determination could be made for each case.

1. Descriptive Statistics

Table 5.9 shows the means and standard deviations of the 21 interval-scale independent variables. The standard deviations, which range between 0.75 and 1.63, suggest reasonable variation in the responses. Almost all variable means (with the exception of availability of mediators) have a value higher than 3, however, indicating some level of agreement on the existence of a particular determinant of success for the collaboration initiatives studied. Table 5.10 shows in detail the percentage of cases for which respondents agreed that a certain determinant of success was operative in the collaborative effort. The interval scale is collapsed into three categories in which scores of 0 to 2 may be interpreted as disagreement, 3 as neutral, and scores of 4 to 6 as showing different levels of agreement. Figure 5.3 focuses on the percentage of cases that scored above the midpoint of 3.

The first striking result is that 20 of the 21 variables examined were operative to a degree in more than 50 percent of the cases. In fact, 18 were operative in 70 percent of the cases. In over 90 percent of the cases respondents claimed that all affected stakeholders were included; participants were committed to the collaboration process; the issue was ripe; parties negotiated in good faith; the participants had good interpersonal relationships and open lines of communication; and they had relevant professional and technical capacities.

13 Generally factor analysis requires interval data. However, Kim and Mueller (1978b) note that ordinal data may be used if it is thought that the assignment of ordinal categories to the data does not seriously distort the underlying metric scaling. See Chapter 4 for details on how factor analysis was conducted for this study.
14 Since four of the variables are ordinal Kendall’s tau-b was used.
<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Question Number</th>
<th>Scale</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Member Factors:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Inclusion of all affected stakeholders (intergovernmental participation)</td>
<td>23</td>
<td>0 to 6</td>
<td>4.57</td>
<td>1.20</td>
</tr>
<tr>
<td>• Magnitude of stakeholder incentives</td>
<td>23</td>
<td>0 to 6</td>
<td>4.05</td>
<td>1.20</td>
</tr>
<tr>
<td>• Commitment of the collaboration participants to the collaboration process</td>
<td>23</td>
<td>0 to 6</td>
<td>4.61</td>
<td>0.75</td>
</tr>
<tr>
<td>• Effective leadership for the collaboration</td>
<td>23</td>
<td>0 to 6</td>
<td>4.59</td>
<td>0.99</td>
</tr>
<tr>
<td><strong>Process Factors:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ripeness of the issue / Timing</td>
<td>23</td>
<td>0 to 6</td>
<td>4.97</td>
<td>0.76</td>
</tr>
<tr>
<td>• Decision-making structure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Equity in decision making</td>
<td>23</td>
<td>0 to 6</td>
<td>4.15</td>
<td>0.95</td>
</tr>
<tr>
<td>⇒ Power distribution among the parties</td>
<td>23</td>
<td>0 to 6</td>
<td>3.56</td>
<td>1.48</td>
</tr>
<tr>
<td>⇒ Agreement on ground rules / Mutually agreed upon decision-making process</td>
<td>23</td>
<td>0 to 6</td>
<td>4.12</td>
<td>1.21</td>
</tr>
<tr>
<td>⇒ Proportional representation</td>
<td>23</td>
<td>0 to 6</td>
<td>3.83</td>
<td>1.18</td>
</tr>
<tr>
<td>• Availability of mediators during crisis points in decision making</td>
<td>23</td>
<td>0 to 6</td>
<td>2.91</td>
<td>1.63</td>
</tr>
<tr>
<td>• Organization and centralization of the collaboration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Degree of formalization of the collaboration</td>
<td>25</td>
<td>0 to 6</td>
<td>3.47</td>
<td>1.10</td>
</tr>
<tr>
<td>⇒ Level of resource commitment to the collaboration</td>
<td>26</td>
<td>0 to 6</td>
<td>3.86</td>
<td>0.89</td>
</tr>
<tr>
<td>• The relationship between the parties</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Agreement on the scope of the collaboration</td>
<td>23</td>
<td>0 to 6</td>
<td>4.34</td>
<td>0.94</td>
</tr>
<tr>
<td>⇒ Shared ideology / common ground among participants</td>
<td>23</td>
<td>0 to 6</td>
<td>3.86</td>
<td>1.29</td>
</tr>
<tr>
<td>⇒ Negotiating in good faith</td>
<td>23</td>
<td>0 to 6</td>
<td>4.58</td>
<td>0.91</td>
</tr>
<tr>
<td>⇒ Existence of trust in the relationships</td>
<td>23</td>
<td>0 to 6</td>
<td>4.17</td>
<td>1.15</td>
</tr>
<tr>
<td>⇒ Maintaining good interpersonal relationships among participants</td>
<td>23</td>
<td>0 to 6</td>
<td>4.71</td>
<td>0.89</td>
</tr>
<tr>
<td>⇒ Establishing clear lines of communication</td>
<td>23</td>
<td>0 to 6</td>
<td>4.71</td>
<td>0.96</td>
</tr>
<tr>
<td>• Relevant professional and technical capacities</td>
<td>23</td>
<td>0 to 6</td>
<td>4.86</td>
<td>0.86</td>
</tr>
<tr>
<td><strong>Resource Factors:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Political support</td>
<td>24</td>
<td>0 to 6</td>
<td>4.28</td>
<td>1.28</td>
</tr>
<tr>
<td>• Funding</td>
<td>24</td>
<td>0 to 6</td>
<td>3.94</td>
<td>1.33</td>
</tr>
</tbody>
</table>
Table 5.10. Responses to Determinants of Collaboration Success

<table>
<thead>
<tr>
<th>DETERMINANTS OF COLLABORATION SUCCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Member Factors</strong></td>
</tr>
<tr>
<td>• Inclusion of all affected stakeholders (intergovernmental participation)</td>
</tr>
<tr>
<td>• Magnitude of stakeholder incentives</td>
</tr>
<tr>
<td>• Commitment of the collaboration participants to collaboration</td>
</tr>
<tr>
<td>• Effective leadership for the collaboration</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Process Factors</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ripeness of the issue / Timing</td>
</tr>
<tr>
<td>• Decision-making structure</td>
</tr>
<tr>
<td>⇒ Equity in decision making</td>
</tr>
<tr>
<td>⇒ Power distribution among the parties</td>
</tr>
<tr>
<td>⇒ Agreement on ground rules / Mutually agreed upon decision-making process</td>
</tr>
<tr>
<td>⇒ Proportional representation</td>
</tr>
<tr>
<td>• Availability of mediators during crisis points in decision making</td>
</tr>
<tr>
<td>• Organization and centralization of the collaboration</td>
</tr>
<tr>
<td>⇒ Existence of formal rules</td>
</tr>
<tr>
<td>⇒ Resource commitment</td>
</tr>
<tr>
<td>• The relationship between the parties</td>
</tr>
<tr>
<td>⇒ Agreement on the scope of the collaboration</td>
</tr>
<tr>
<td>⇒ Shared ideology / common ground among participants</td>
</tr>
<tr>
<td>⇒Negotiating in good faith</td>
</tr>
<tr>
<td>⇒ Existence of trust in the relationships</td>
</tr>
<tr>
<td>⇒ Maintaining good interpersonal relationships with participants</td>
</tr>
<tr>
<td>⇒ Establishing open lines of communication</td>
</tr>
<tr>
<td>• Relevant professional and technical capacities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Resource Factors</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Political support</td>
</tr>
<tr>
<td>• Funding</td>
</tr>
</tbody>
</table>

All other variables were operative in 58 to 89 percent of the cases except for the availability of mediator at crisis points in decision making which scored highly only in 44 percent of the cases. This variable was dropped from the analysis for two reasons: First, there is a big possibility of measurement error in this variable. In the completed survey instruments a significant number of respondents did not respond, put in a question mark, or noted “Not
Applicable”. In addition, with 48.4 percent of respondents assigning a value of less than 3.0 for this variable, it has the highest percentage of low scores among all independent variables (Table 5.9). This is a surprising and unexpected result. Leach and Sabatier (2003) found that effective facilitation is related to the level of agreement reached but could not confirm that it is important in explaining implementation of agreements/restoration projects or perceived impacts on the watershed. In their examination of the studies done in the field, Leach and Pelkey (2002) found that effective facilitation and coordination is only second to funding in explaining the success of watershed partnerships.

![Figure 5.3. Determinants of Collaboration Success](image)

Figure 5.3. Determinants of Collaboration Success

15 Twelve respondents (7.2 percent) left the question blank - 3 of them adding a question mark to the margin, 3 respondents (1.8 percent) responded “I don’t know” and 10 respondents (6 percent) responded “Not applicable.” These last two were not options given to the respondents in the survey instrument, they had to write it in themselves. The Question Mark-Don’t Know-N/A remarks from 9.6 percent of the respondents combined with the rest of the blanks (5.4 percent) and the 15 percent (25 respondents) rating availability of mediators 0 on the 0-6 Likert scale indicates that there was a problem with this question. Neither the high blank rate, nor the write-in responses or the high number of zero ratings was observed for any of the other independent variables.
There are some possible explanations for the unexpectedly low scores in this study. While facilitation and coordination are not exactly the same as mediation, Susskind and Cruikshank (1989) describe facilitation and mediation as types of assisted negotiation. In mediation, the negotiator is more knowledgeable about the issue and offers solutions, whereas in facilitation, the negotiator focuses mostly on the process. Coordinators usually act as facilitators in the types of cases examined here. However, people usually think of only formal mediation when they hear the term mediation. As a result, the respondents might not have understood the question (question marks and blanks indicate this), they might have thought it is irrelevant to the case (blanks and very low scores indicate this), or both. The natural management plan initiatives examined in this study did not create the types of conflicts that would require the assistance of a third party mediator. Furthermore, if the convening agency representatives acted as de facto mediators, respondents might not have considered them as such and reflected this in their responses. If the question was asked on a different way, the responses might have been different.

The high level of multicollinearity among the independent variables is evident from the bivariate correlations displayed on Table 5.11 and the changing signs of the correlation coefficients for some variables from their bivariate relationship with the dependent variables to the multivariate relationships when a preliminary linear regression analysis was performed using all individual independent variables. Therefore, it is necessary to drop some variables from the analysis or combine them in some sort of index. This will unfortunately make it impossible to see the individual contribution of each independent variable to the model, but because the independent variables are correlated with each other this is inevitable. Furthermore, the small size of the sample is not sufficient to run multivariate analysis using a large number of independent variables. A data reduction technique such as exploratory factor analysis can be used to address both of these problems. Gorsuch (1983) and Bernstein (1987) include orthogonalization of the variables and reduction in the number of variables among the uses of exploratory factor analysis. Using factors generated by factor analysis as regression independent variables has additional benefits. We might not be measuring 20 independent constructs with the initial list of independent variables and if that is so, it would be useful to identify the main constructs measured. This is also desirable for scientific parsimony. In addition, because the resulting factors will be uncorrelated with each other the unique contribution of each predictor in explaining the variance on the dependent variable can be calculated (Stevens, 2002).
Table 5.11. Independent Variable Bivariate Correlations (Pearson’s r)

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<tr>
<th>DETERMINANTS OF COLLABORATION SUCCESS</th>
<th>Stakeholder Inclusion</th>
<th>Incentive to Participate</th>
<th>Commitment</th>
<th>Leadership</th>
<th>Ripeness of the Issue</th>
<th>Decision Making Equity</th>
<th>Power Equity</th>
<th>Agreement on Ground Rules</th>
<th>Proportional Representation</th>
<th>Agreement on Scope</th>
<th>Common Ground</th>
<th>Good Faith</th>
<th>Trust</th>
<th>Good Relationships</th>
<th>Open Communication</th>
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<th>Funding</th>
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* significant at 0.05 level  ** significant at 0.01 level

For easier interpretation, correlations less than 0.5 are shaded to make higher correlation coefficients stand out. Highlights show the correlations between variables that were grouped together in Principal Component Analysis: Pink: Component 1, Yellow: Component 2, Blue: Component 3.
Only the interval scale independent variables in the study are included in the factor analysis. The final dataset used for this study includes 62 cases and the ratio of cases to variables is 3.65. The difference between the number of cases and the number of variables is 45. The data used for this research passed all three tests for intercorrelation strength. There are substantial numbers of correlation coefficients higher than 0.3 among the independent variables (Table 5.11) and the scatterplots indicate that the relationships among the variables are linear. Bartlett’s test is significant at the p = 0.000 level, and the Kaiser-Meyer-Olkin index is 0.832, which falls into the “meritorious” range.

The formal rules measure from the six dimensions of the Mulford and Rodgers typology is significantly correlated with only one other independent variable and the magnitude of this correlation is lower than 0.3 (see Table 5.11). Therefore, this variable is excluded from factor analysis to be included in the regression analysis as is. The resource commitment measure, on the other hand, is highly correlated with a large number of the other independent variables, therefore it was included in the factor analysis of the other interval scale independent variables for data reduction purposes. The remaining four dimensions are included in the regression analyses as separate variables. The nominal variable that measures the rank of representatives is recoded as a dummy variable to differentiate cases dominated by supervisory staff-professionals and upper level administrators from others.

Ripeness/of the issue/timing variable is not included in the factor analysis, not only because this variable was theoretically grouped by itself to begin with (see Table 4.2), but also because it is not correlated significantly with 12 of the other 19 variables, and has correlations over 0.3 with only 5 variables. While the same holds true in terms of number of significant correlations and number of correlations over 0.3 for the political support variable, the magnitude of the significant correlations for ripeness of the issue are quite low, the highest being 0.451, whereas for political support the significant correlations are much higher, up to 0.678. Therefore, ripeness of the issue variable is entered in linear regression analysis as an individual independent variable.

The relevant professional and technical capacities variable is dropped completely from the analysis because it was highly correlated with the relationship variables (see Table 5.11) and as a result during initial factor analysis runs it was grouped together with these variables. There is no theoretical reason why these variables should be highly correlated or grouped together. A
close examination of the survey instrument suggests that measurement error might have caused this unexpected and highly unlikely result. The question measuring this variable was asked immediately after the six questions dealing with relationship variables indicating the possibility that the order of the questions had an effect on the responses (see Appendix A, Question 23).

2. Principal Component Analysis Results for the Independent Variables

The aim of this research is to identify the determinants of interorganizational collaboration success using the answers to 25 survey questions (Table 4.2). While it is unreasonable to expect to use all of these independent variables individually in regression analysis, especially considering the small sample size, and the necessity of some sort of indexing was acknowledged in the theoretical framework of the research, combining too many variables would decrease the usefulness of the results. For example, extraction of two components would divide the independent variables into two large groups, and the results of a linear regression could only tell us about the explanatory power of two groups of variables as a whole. This would make the study lose some important details. Therefore, it is preferable to extract more components rather than fewer in this particular situation. Pallant (2001) points out that factor analysis as a data exploration technique does not have hard and fast statistical rules in terms of how many factors to retain. The researcher uses his/her judgment depending on the research context. In this study, the scree plot test was not found necessary. The use of Kaiser’s criterion should give accurate results in determining the number of components because the number of variables is small with 17 and none of the variables has a communality less than 0.40. Eleven of the 17 variables have communalities greater than 0.70. The scree plot is also consistent with the Kaiser’s criterion in showing a decline in the slope after the third component (Figure 5.4).

An oblique rotation of the components using the Oblimin method showed correlations between components ranging between 0.285 and 0.376, significantly lower than the values on Table 5.4 which go as high as 0.830. As a result, the orthogonal Varimax rotation is used.

In the Principal Component Analysis of the 17 interval-scale independent variables, three components have eigenvalues over 1 explaining 47.0, 14.4, and 8.6 percent of the variance in the independent variables respectively (Table 5.12). The three components together explain 70 percent of the variance. Although fewer items load on components 2 and 3, they load quite strongly (most above 0.6) (Table 5.13).
Figure 5.4. Scree Plot for Independent Variables

Table 5.12. Total Variance Explained and Communalities

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<thead>
<tr>
<th>Component</th>
<th>Initial Eigenvalues</th>
<th>Variables</th>
<th>Communalities</th>
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Extraction Method: Principal Component Analysis.
Table 5.13. Rotated Component Matrix\(^a\)

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Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
\(^a\) Rotation converged in 5 iterations, absolute loadings less than 0.3 are suppressed.

Shadings identify loadings that are very good (>0.63) or excellent (>0.71) according to Comrey and Lee (1992).

Unfortunately, the results of this analysis do not give a simple structure. There is a multiple loading problem with 5 of the 17 variables loading significantly (>0.30) on multiple components. The challenge in such a case is to determine in which component to include those variables. Pett et al. (2003) suggest including these variables with the component that is most closely related conceptually. In addition, the reliability measure *Cronbach’s alpha* can be used to evaluate a component’s internal consistency as well as to decide where best to place variables with multiple strong loadings. This measure “represents the proportion of total variance in a given scale that can be attributed to a common source” and values range between 0 and 1, higher values indicating greater reliability among the items in the set (Pett et al., 2003: 185). The reliability analysis done for the three components in this case shows small inter-item correlation variances (0.0084 for Component 1, 0.0052 for Component 2, and 0.0082 for Component 3), indicating high consistency among the inter-item correlations. Pett et al. (2003: 192) indicate that “[t]he closer this variance value to 0, the more consistency there is among the interitem
correlations.” The alpha coefficients are strong (0.9222, 0.8564, and 0.8152) indicating that 92, 86, and 82 percent of the variance of the total scores on these components can be attributed to reliable, or systematic, variance of the variables that comprise the components. Table 5.11 indicates the bivariate correlations between the independent variables that are grouped together in different colored highlights.

Comparatively the inter-item correlations of the averaged indices are higher (0.0108 for member factors, 0.0248 for decision making, 0.0184 for relationship, and 0.0151 for resource factors) and the alpha coefficients are weaker (0.7871, 0.8387, 0.9159, and 0.7639 respectively) indicating that the groupings of the principal component analysis are slightly more reliable for index construction and scale building.

Interpretation of the components is mostly consistent with the theoretical framework developed in this study prior to data collection\(^\text{16}\) (Table 5.14). Five of the six relationship measures from Table 4.2 are grouped together. In addition to these, Component 1 includes two equity variables that are also process factors and conceptually related with the relationships between the parties. Component 1 is therefore called *relationships and equity between the parties*. Component 2 includes measures related with the participation rate of the groups, representation, leadership, and agreement on scope and processes. This component is called *participant characteristics and agreement*. The third component includes both resource variables, the resource commitment variable originally measured for the Mulford and Rodgers collaboration strategy typology, as well as participation motives and commitment. Theoretically resource commitment fits well with the two resource factors. This component is called *commitment and support*. Political support and funding are support variables, while magnitude of the participant incentives is closely related to their resource and other types of commitment.

V. Analysis of the Determinants of Success

1. Bivariate Relationships

Table 5.15 shows the bivariate correlations of the subjective and objective measures of success with the individual determinants of success. The coefficients for the subjective and

\(^{16}\) Reliability test results are used only for deciding where to include the commitment variable. The numbers are too close to each other to be of any use for the other variables with multiple loadings. Those are placed based on theoretical fit.
objective measures are strikingly similar and indicate strong and significant relationships between collaboration success and effective leadership for the collaboration. Commitment of the collaboration participants to collaboration and relevant professional and technical capabilities is strongly correlated with the subjective measure of success and moderately correlated with the objective measure, while equity in decision making and power distribution among the parties is moderately correlated with the subjective measure and strongly correlated with the objective measure. The results indicate moderate relationships between both measures of success and inclusion of all affected stakeholders, agreement on ground rules / mutually agreed upon decision-making process; resource commitment; agreement on the scope of the collaboration; negotiating in good faith; existence of trust in the relationships; maintaining good interpersonal relationships with participants; and establishing open lines of communication. All these results are significant at the 0.01 level.

Table 5.14. Three Components Extracted from 17 Independent Variables

<table>
<thead>
<tr>
<th>Component 1: Relationships and equity between the parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existence of trust in the relationships PF - R (.897)*</td>
</tr>
<tr>
<td>Maintaining good interpersonal relationships with participants PF - R (.875)</td>
</tr>
<tr>
<td>Establishing open lines of communication PF - R (.852)</td>
</tr>
<tr>
<td>Negotiating in good faith PF - R (.838)</td>
</tr>
<tr>
<td>Shared ideology / common ground among participants PF - R (.813)</td>
</tr>
<tr>
<td>Equity in decision making PF - DM (.748)</td>
</tr>
<tr>
<td>Power distribution (equity) among the parties PF - DM (.620)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component 2: Participant characteristics and agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportional representation PF - DM (.830)</td>
</tr>
<tr>
<td>Inclusion of all affected stakeholders (intergovernmental participation) MF (.809)</td>
</tr>
<tr>
<td>Agreement on the scope of the collaboration PF - R (.623)</td>
</tr>
<tr>
<td>Agreement on ground rules / Mutually agreed upon decision-making process PF - DM (.622)</td>
</tr>
<tr>
<td>Effective leadership for the collaboration MF (.513)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component 3: Commitment and Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political support RF (.890)</td>
</tr>
<tr>
<td>Funding RF (.823)</td>
</tr>
<tr>
<td>Resource commitment PF (.644)</td>
</tr>
<tr>
<td>Magnitude of stakeholder incentives MF (.639)</td>
</tr>
<tr>
<td>Commitment of the collaboration participants to collaboration MF (.477)</td>
</tr>
</tbody>
</table>

PF: Process Factor, MF: Member Factor, RF: Resource Factor, R: Relationship, DM: Decision Making
* Values in parenthesis indicate the loading of that item on the component.
Table 5.15. Bivariate Correlations of Objective and Subjective Collaboration Success with Individual Hypothesized Determinants (Pearson’s r)

<table>
<thead>
<tr>
<th>DETERMINANTS OF COLLABORATION SUCCESS</th>
<th>Subjective Measure of Success</th>
<th>Objective Success Index</th>
<th>Goal Realization Index</th>
<th>Satisfaction Index</th>
<th>Relationship Enhancement Index</th>
<th>Efficiency Index</th>
<th>Overall Satisfaction</th>
<th>Goal Realization Scale</th>
<th>Relationship Enhancement Scale</th>
<th>Capacity Building Scale</th>
<th>Efficiency Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Member Factors</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Inclusion of all affected stakeholders</td>
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<td>.598**</td>
<td>.386**</td>
<td>.569**</td>
<td>.561**</td>
<td>.383**</td>
<td>.497**</td>
<td>.527**</td>
<td>.561**</td>
<td>.385**</td>
<td></td>
</tr>
<tr>
<td>Magnitude of stakeholder incentives</td>
<td>.515**</td>
<td>.359**</td>
<td>.370**</td>
<td>.491**</td>
<td></td>
<td></td>
<td>.556**</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Commitment of the collaboration participants</td>
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<td>.440**</td>
<td>.629**</td>
<td>.400**</td>
<td>.421**</td>
<td>.471**</td>
<td>.594**</td>
<td>.400**</td>
<td>.276**</td>
<td>.423**</td>
</tr>
<tr>
<td>Effective leadership for the collaboration</td>
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<td>.690**</td>
<td>.536**</td>
<td>.662**</td>
<td>.455**</td>
<td>.522**</td>
<td>.533**</td>
<td>.693**</td>
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<td>.290**</td>
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</tr>
<tr>
<td>Ripeness of the issue / Timing</td>
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<td>.325**</td>
<td>451**</td>
<td>.295**</td>
<td>.400**</td>
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<tr>
<td>Decision-making structure</td>
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</tr>
<tr>
<td>⇒ Equity in decision making</td>
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<td>.629**</td>
<td>.440**</td>
<td>.610**</td>
<td>.431**</td>
<td>.493**</td>
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<td>.549**</td>
<td>.429**</td>
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<td>.492**</td>
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<td>.585**</td>
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<td>.578**</td>
<td>.522**</td>
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<td>.432**</td>
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<td>.444**</td>
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<td>.313**</td>
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<tr>
<td>Organization and centralization of the coll.</td>
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<tr>
<td>⇒ Resource commitment</td>
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<tr>
<td>The relationship between the parties</td>
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</tr>
<tr>
<td>⇒ Agreement on the scope of the collaboration</td>
<td>.579**</td>
<td>.552**</td>
<td>.542**</td>
<td>.525**</td>
<td>.258*</td>
<td>.421**</td>
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<td>.602**</td>
<td>.257**</td>
<td>.328**</td>
<td>.421**</td>
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<tr>
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<td>.379**</td>
<td>.323**</td>
<td>.448**</td>
<td>.307*</td>
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<td>.449**</td>
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<tr>
<td>⇒ Negotiating in good faith</td>
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<td>.506**</td>
<td>.349**</td>
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<td>.276*</td>
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<td>.438**</td>
<td>.438**</td>
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<td>.444**</td>
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<tr>
<td>⇒ Good interpersonal relationships</td>
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<td>.559**</td>
<td>.399**</td>
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<td>.525**</td>
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<td>.408**</td>
<td>.263*</td>
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<td>⇒ Establishing open lines of communication</td>
<td>.579**</td>
<td>.452**</td>
<td>.400**</td>
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<td>.288**</td>
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<tr>
<td>⇒ Relevant professional and technical capacities</td>
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<td>.497**</td>
<td>.388**</td>
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<td>.371**</td>
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<tr>
<td><strong>Resource Factors</strong></td>
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<td>Funding</td>
<td>.327**</td>
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<td>.279**</td>
<td></td>
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</tr>
</tbody>
</table>

* significant at 0.05 level
** significant at 0.01 level

VS= Very Strong (.8-1)  M= Moderate (.4-.59)
S= Strong (.6-.79)  W= Weak (.2-.39)
Proportional representation is weakly correlated with the subjective measure and strongly correlated with the objective measure whereas political support and the magnitude of stakeholder incentives are moderately correlated with the subjective measure and weakly correlated with the objective one. The results also show a weak relationship between both measures of success and the ripeness of the issue and between the subjective measure of success and funding significant at the 0.01 level. No significant relationship is found between success and the existence of formal rules.

Table 5.16 shows the bivariate correlations of objective and subjective collaboration success with the indexed and scaled determinants of success. The member factors index, decision-making structure index, relationships and equity scale, and participant characteristics and agreement scale are significantly correlated with all 11 dependent variables. The commitment and support scale and the relationship between the parties index are both correlated with 8, and the resource factors index is correlated with 5 of the 11 dependent variables.

When the individual measures of determinants of success are averaged to create composite indices based on the groupings on Table 5.15 the decision making structure index and member factors index are strongly correlated with both measures of success (Table 5.16). The relationship between the parties index is moderately correlated with the objective and subjective measures. The resource factors index, on the other hand, is moderately correlated with the subjective measure of success and weakly correlated with the objective measure. The relationship and equity scale and the participant characteristics and agreement scales are both strongly correlated with the objective and subjective measures of success while the commitment and support scale is moderately correlated with both measures.

2. Linear Regression Results

i. The Variables

Table 5.17 lists the variables used in the linear regression models as well as how each particular variable is measured and/or calculated. Eleven dependent variables of three kinds are used. The subjective measure of success and overall satisfaction variables are measured through single survey questions. The objective measure of success index is the arithmetic average of all 16 objective dependent variables (see Table 5.1).
Table 5.16. Bivariate Correlations of Objective and Subjective Collaboration Success with Indexed /Scaled Determinants (Pearson’s r)

<table>
<thead>
<tr>
<th>DETERMINANTS OF COLLABORATION SUCCESS</th>
<th>Subjective Measure of Success</th>
<th>Objective Success Index</th>
<th>Goal Realization Index</th>
<th>Satisfaction Index</th>
<th>Relationship Enhancement Index</th>
<th>Efficiency Index</th>
<th>Overall Satisfaction</th>
<th>Goal Realization Scale</th>
<th>Relationship Enhancement Scale</th>
<th>Capacity Building Scale</th>
<th>Efficiency Scale</th>
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</thead>
<tbody>
<tr>
<td>Arithmetic Average Indices</td>
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</tr>
<tr>
<td>Member Factors</td>
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<td>.693**</td>
<td>.538**</td>
<td>.730**</td>
<td>.500**</td>
<td>.449**</td>
<td>.494**</td>
<td>.740**</td>
<td>.499**</td>
<td>.301*</td>
<td>.450**</td>
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<tr>
<td>Decision-Making Structure</td>
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<td>.672**</td>
<td>.632**</td>
<td>.633**</td>
<td>.447**</td>
<td>.436**</td>
<td>.500**</td>
<td>.621**</td>
<td>.447**</td>
<td>.485**</td>
<td>.436**</td>
</tr>
<tr>
<td>Relationship between the Parties</td>
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<td>.477**</td>
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<tr>
<td>Resource Factors</td>
<td>.514**</td>
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<td>.418**</td>
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<tr>
<td>Component-Based Scales</td>
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</tr>
<tr>
<td>Relationships and Equity</td>
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<td>Participant Characteristics and Agreement</td>
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<td>.602**</td>
<td>.670**</td>
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<td>.696**</td>
<td>.466**</td>
<td>.388**</td>
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<td>Commitment and Support</td>
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<td>.263*</td>
<td>.265*</td>
<td>.562**</td>
<td>.262*</td>
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</tr>
</tbody>
</table>

* significant at 0.05 level
** significant at 0.01 level

VS= Very Strong (.8-.1)  M= Moderate (.4-.59)
S= Strong (.6-.79)  W= Weak (.2-.39)
Table 5.17. Dependent and Independent Variables for Linear Regression Analysis

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Question Numbers and Computation of New Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjective Success</td>
<td>Question 13</td>
</tr>
<tr>
<td>Objective Success Index</td>
<td>Arithmetic average of all dependent variables</td>
</tr>
<tr>
<td>Goal Realization Index</td>
<td>Arithmetic average of goal realization variables</td>
</tr>
<tr>
<td>Satisfaction Index</td>
<td>Arithmetic average of satisfaction variables</td>
</tr>
<tr>
<td>Relationship Enhancement Index</td>
<td>Arithmetic average of relationship variables</td>
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<tr>
<td>Efficiency Index</td>
<td>Arithmetic average of efficiency variables</td>
</tr>
<tr>
<td>Overall satisfaction</td>
<td>Question 17</td>
</tr>
<tr>
<td>Goal Realization Scale</td>
<td>Weighted average of elements of Component 1 from PCA*</td>
</tr>
<tr>
<td>Relationship Enhancement Scale</td>
<td>Weighted average of elements of Component 2 from PCA</td>
</tr>
<tr>
<td>Capacity Building Scale</td>
<td>Weighted average of elements of Component 3 from PCA</td>
</tr>
<tr>
<td>Efficiency Scale</td>
<td>Weighted average of elements of Component 4 from PCA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member Factors (MF) index</td>
</tr>
<tr>
<td>Decision Making (DM) Index</td>
</tr>
<tr>
<td>Relationship (REL) Index</td>
</tr>
<tr>
<td>Resource Factors (RF) Index</td>
</tr>
<tr>
<td>Ripeness of the Issue</td>
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<tr>
<td>Representative Status</td>
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<td>Focus of Power</td>
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<td>Focus of Control</td>
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<td>Focus of Goals</td>
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<td>Relationships and Equity</td>
</tr>
<tr>
<td>Participant Characteristics and Agreement</td>
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<tr>
<td>Commitment and Support</td>
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<table>
<thead>
<tr>
<th>Control Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Organizations</td>
</tr>
<tr>
<td>The Diversity of Organizations</td>
</tr>
<tr>
<td>Geographical Scale of the Case</td>
</tr>
</tbody>
</table>

* The variable loadings on each component are used as weights.

The empirical justification for combining these questions is that they scale reliably. For this index inter-item correlations is low at 0.0341 indicating high consistency among the inter-item correlations. The Cronbach’s alpha coefficient is 0.8811, indicating that 88 percent of the variance of the total scores on this index can be attributed to reliable variance of the variables that comprise the index. Separate arithmetic average indices were constructed for realization of goals, satisfaction of collaboration participants, enhanced interorganizational relations, and efficiency based on several questions grouped under these headings in Table 5.1. The remaining
four dependent variables are component-based scales obtained through principal component analysis of all 16 objective dependent variables except for overall satisfaction. As mentioned before this variable was excluded from the final factor analysis solution after determining that its grouping with the two efficiency variables does not make theoretical sense.

Two sets of independent variables are used in the regression analysis with the 11 dependent variables listed in Table 5.9. The first set includes arithmetic average indices for member factors, decision making factors, relationship factors, and resource factors based on the groupings in Table 5.9. In addition, ripeness of the issue, representative status, power focus, focus of control, and focus of goals were measured through single questions. The second set of independent variables consists of three component-based scales instead of the arithmetic average indices: relationships and equity, participant characteristics and agreement, and commitment and support. Number of organizations, diversity of organizations and geographic scale of the case are used as control variables.

The *formal rules* measure from the six dimensions of the Mulford and Rodgers typology is not significantly correlated with any of the dependent variables nor with any of the indices based on them (see Table 5.15). Since there is no theoretical reason to assume this variable was related with collaboration success other than it being a component of the Mulford and Rodgers typology, this variable was dropped from further analysis.

Component-based scales for dependent and independent variables are constructed by taking weighted averages of the variables that load highly to each component. The variable loadings on each component are used as weights.

### ii. Assumptions of Multiple Regression Analysis

The assumptions about the data for multiple regression analysis are concerned with the data scale, intercorrelations between the independent variables, outliers, linearity, normality of the variable distribution, and homoskedasticity.

The dependent variables should be measured at the interval level, independent variables should be predominantly at the interval level as well, and the non-interval independent variables should be dichotomous (de Vaus, 2002). All the variables in this study are interval except for geographic scale of the case, which is dichotomous.

Independent variables should not be multicollinear. As mentioned before, most of the 20 independent variables are highly intercorrelated (see Table 5.11). Data reduction through
construction of averaged indices or creation of component-based scales using Principal Component Analysis took care of this problem (Table 5.18). None of the bivariate correlations among the grouped independent variables have values higher than 0.7. Multicollinearity was also tested using the variance inflation factor (VIF) test which measures “how much the variances of the estimated regression coefficients are inflated as compared to when the independent variables are not linearly related” (Neter et al., 1983: 391). A VIF over 10 indicates that multicollinearity may be unduly influencing the least square estimates. None of the models tested showed VIF factors exceeding 10 for the independent variables. The highest VIF value is 3.9 in models 1 through 11, which use the averaged indices as independent variables and 2.5 in models 12 through 22 which use component-based scales as independent variables. These VIFs and the bivariate correlations in Table 5.18 show that the component-based scales are somewhat more effective than the averaged indices in reducing the levels of collinearity and multicollinearity between the variables.

Table 5.18. Bivariate Correlations of Grouped Independent Variables (Pearson’s r)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Member Factors</th>
<th>Decision-Making Structure</th>
<th>Relationship between the Parties</th>
<th>Resource Factors Index</th>
<th>Relationships and Equity</th>
<th>Participant Characteristics and Agreement</th>
<th>Commitment and Support</th>
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</thead>
<tbody>
<tr>
<td>Arithmetic Average Indices</td>
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<td>• Member Factors</td>
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<td>• Decision-Making Structure</td>
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<td>• Relationship between the Parties</td>
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<td>.592**</td>
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<td>• Resource Factors Index</td>
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<td>.314*</td>
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<tr>
<td>• Relationships and Equity</td>
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<td>.715**</td>
<td>.928**</td>
<td>.308*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Participant Characteristics and Agreement</td>
<td>.851**</td>
<td>.873**</td>
<td>.538**</td>
<td>.402**</td>
<td>.599**</td>
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<td></td>
</tr>
<tr>
<td>• Commitment and Support</td>
<td>.715**</td>
<td>.450**</td>
<td>.349**</td>
<td>.969**</td>
<td>.337**</td>
<td>.504**</td>
<td></td>
</tr>
</tbody>
</table>

* significant at 0.05 level
** significant at 0.01 level

VS= Very Strong (.8-1)  M= Moderate (.4-.59)
S= Strong (.6-.79)      W= Weak (.2-.39)
In addition to the outlier analysis performed for the factor analysis, outlying influential observations that have a substantial impact on the least squares regression fit were identified for each regression model as well using the studentized deleted residuals and Cook’s distance measures. Examining *studentized deleted residuals* for large absolute values helps to identify outlying Y observations. The appropriate t distribution should be used to ascertain how far in the tails such outlying value falls. Neter et al. (1983) suggest comparing the residual to \( t(0.95; n-p-1) \) where \( p \) stands for number of parameters. As a result observations with residuals higher than \( t(0.95; n-p-1) \) are identified as outliers. The residuals in the regression models presented in this research are compared to:

\[
t(0.95;62-11-1) = t(0.95;50) = 1.676
\]

Thus observations with values higher than 1.676 in absolute value are identified as outliers.

The next step after identifying outlying values is to see how influential they are on the fit of the regression function using *Cook’s Distance* measure, which is an “overall measure of the impact of the \( i \)th observation on the estimated regression coefficients” (Neter et al., 1983: 407). Once Cook’s D is calculated, the percentile value is looked up for the corresponding F distribution. “If the percentile value is less than about 10 or 20 percent, the \( i \)th observation has little apparent influence on the fitted regression function. If, on the other hand, the percentile value is near 50 percent or more, … the \( i \)th observation has a substantial influence on the fit of the regression function” (Neter et al., 1983: 408).

In this analysis observations with Cook’s D values greater than 0.96 are greater than the 50\(^{th}\) percentile:

\[
D > F_{0.5} (p, n-p) = F(12, 62-12) = F(12, 50) = 0.96
\]

In this case, there were no Cook’s D values higher than 50 percent in any of the models, the highest distance values being less than 0.55. This means that even if the observations with the highest Cook’s distance values influence a regression model, the extent of the influence is not large enough to necessitate any remedy.

In any case, the observations which had studentized deleted residuals higher than the critical value of 1.676 were examined in terms of type of case, number of respondents, and number and type of parties involved to see whether there were any reasons why they would be atypical and should be excluded from the analysis. There were no identifiable common
characteristics among these cases and no obvious reason why they should be the result of a measurement error. It was concluded that they represent legitimate outlying events and should be kept in the dataset for analysis.

The data was screened for linearity by examining the bivariate scatter plots between pairs of variables for conducting Principal Component Analysis and no serious violations were found. Most of the variables were normally distributed.

White’s test for heteroskedasticity was performed for the 22 regression models presented in the following section. Heteroskedasticity of the error term (ε) means that the variance of ε is greater for some values of the independent variables than for others (McClendon, 1994). This test involves running a regression of the squares of the residuals on the variables suspected of causing the heteroskedasticity, their squares, and cross products.

The procedure for the test in SPSS is as follows: While conducting the linear regression analysis the unstandardized residuals (predicted) are saved. Partial plots of the residuals are examined for all independent variables included in the regression and the ones showing a heteroskedastic pattern are identified. New variables for squares and cross products of these variables are created and the regression is run. If the F is not significant, as was the case for 6 of the 7 models presented here, there is no heteroskedasticity, and therefore no need to continue with the test. For cases in which F is significant, n * R^2 is calculated and compared with χ^2 (df) at the 95 percent confidence level (Gupta, 2000). If n * R^2 is smaller than χ^2 (df) at the 95 percent confidence level heteroskedasticity cannot be confirmed.

The results of the White’s test for regression models with significant F values at the 0.10 level are shown in Table 5.19. The appropriate significance level of the χ^2 distribution for White’s test is not agreed upon and the values suggested range between 0.10 and 0.001. For this study these extreme levels of α are excluded and results are presented for the 0.05 and 0.01 levels. At the 0.05 level heteroskedasticity can be confirmed for only 2 models (numbers 7 and 18). These two models use the same independent variable of overall satisfaction. At the p = 0.01 level heteroskedasticity cannot be confirmed for any of the models indicating that the problem is not very serious.

Heteroskedasticity does not invalidate the multiple regression analysis but weakens it by underestimating the extent of the correlation between the variables (Tabachnick and Fidell, 2000;
De Vaus, 2002). Regression coefficients obtained by ordinary least squares are still unbiased and consistent (Neter and Wasserman, 1983). No remedial measures are used in this study.

<table>
<thead>
<tr>
<th>Model</th>
<th>Df</th>
<th>n * R²</th>
<th>χ² at p= 0.05</th>
<th>Heteroskedasticity</th>
<th>χ² at p=0.01</th>
<th>Heteroskedasticity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 7***</td>
<td>20</td>
<td>62 * 0.599 = 37.14</td>
<td>31.41</td>
<td>Confirmed</td>
<td>37.56</td>
<td>Unconfirmed</td>
</tr>
<tr>
<td>Model 10*</td>
<td>5</td>
<td>62 * 0.153 = 9.486</td>
<td>11.07</td>
<td>Unconfirmed</td>
<td>15.08</td>
<td>Unconfirmed</td>
</tr>
<tr>
<td>Model 14*</td>
<td>20</td>
<td>62 * 0.460 = 28.52</td>
<td>31.41</td>
<td>Unconfirmed</td>
<td>37.56</td>
<td>Unconfirmed</td>
</tr>
<tr>
<td>Model 16*</td>
<td>19</td>
<td>62 * 0.430 = 26.66</td>
<td>30.14</td>
<td>Unconfirmed</td>
<td>36.19</td>
<td>Unconfirmed</td>
</tr>
<tr>
<td>Model 18***</td>
<td>9</td>
<td>62 * 0.335 = 20.77</td>
<td>16.91</td>
<td>Confirmed</td>
<td>21.66</td>
<td>Unconfirmed</td>
</tr>
<tr>
<td>Model 20*</td>
<td>8</td>
<td>62 * 0.230 = 14.26</td>
<td>15.50</td>
<td>Unconfirmed</td>
<td>20.09</td>
<td>Unconfirmed</td>
</tr>
</tbody>
</table>

***significant at 0.01 level  ** significant at 0.05 level  * significant at 0.10 level

iii. Examination of the Regression Models

Table 5.20 shows the linear regression results. Models 1 though 11 in the upper half of the table show the regression results for the 11 dependent variables with the averaged index independent variables while models 12 through 22 in the lower half show the results for the component-based independent variable scales. All models are significant at the α = 0.05 level and have at least one predictor statistically significant at the 0.10 level. Adjusted R² values range between 0.166 and 0.589. The relationships between the determinants of success and the measures of success are positive as expected.

While multiple measures of success are desirable for a thorough evaluation, highly correlated criteria are redundant and can be dropped from the analysis (Leach et al., 2002). In this research study, both the dependent variables and the independent variables were grouped together by two methods: averaged indices based on the theoretical groupings and component-based scales based on principal component analysis. In this process there was some overlap between the groupings of the averaged indices and the component-based scales. This was the case between the relationship enhancement index and scale as well as the efficiency index and scale. The component-based scales group the same questions as the indices based on theory, thus confirming that these questions are measuring the same phenomena. As a result, the only
Table 5.20. Linear Regression Results

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Subjective Success</th>
<th>Objective Success</th>
<th>Goal Realization Index</th>
<th>Satisfaction Index</th>
<th>Relationship Enhancement Index</th>
<th>Efficiency Index</th>
<th>Overall Satisfaction</th>
<th>Goal Realization Scale</th>
<th>Relationship Enhancement Scale</th>
<th>Capacity Building Scale</th>
<th>Efficiency Scale</th>
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<tr>
<td>Adjusted R²</td>
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<td>.586</td>
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<td>.190</td>
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<td>.563***</td>
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<td>.312*</td>
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</tbody>
</table>

***significant at 0.01 level  ** significant at 0.05 level  * significant at 0.10 level
Shaded variables are control variables. Shaded models are not interpreted because they replicate models 9, 11, 20, and 22.
difference in the calculation of the indices and scales is the weighting of the scales with component loadings. Since these scales are highly consistent - that is, the bivariate correlations between them are very high, the differences between the weights based on component loadings is very small and the weights are very close to 1, making the difference between weighted scales and unweighted averaged indices negligible (for the relationship enhancement scale the weights range between 0.857 and 0.917 and for the efficiency scale between 0.871 and 0.907). As a result, the relationship enhancement index and efficiency index (models 5, 6, 16, 17) are discarded because they replicate the component-based scales (models 9, 11, 20, 22).

Table 5.18 shows that there are high intercorrelations among the averaged index independent variables and the component-based independent variables suggesting the possibility that examining the results of only one group might be sufficient. However, the significantly different results between models 2 and 13 as well as 3 and 14 indicate the existence of enough differences to affect the results.

Among the 9 models using averaged indices as predictors, the *member factors index* is significant in 6 models. The *relationship between the parties index* and the *decision-making structure index* are significant in 3 models each. The *resource factors index* that consists of political support and funding is not significant in any of the models. Table 5.21 shows the list of variables each index and scale is composed of. Compared with the averaged indices, the component-based scales perform much better as independent variables. Both the *relationship and equity between the parties scale* and the *participant characteristics and agreement scale* are significant in 6 of the 9 models while the *commitment and support scale* is significant in two models.

Of the individual variables that were entered in the analysis *ripeness of the issue* is significant in 9 of the 18 models, and *focus of goals* and *representative status* are significant in 2 models. Neither *focus of power* nor *focus of control* is significant in any model.

The models show clearly that the relationship between the parties, equity in decision making, participant characteristics, and agreement between them are important for collaboration success no matter how success is measured.

Models 11 and 22 suggest that the collaboration process is more efficient in terms of time and resources only when the parties have good relationships. It is possible that when thinking about the efficiency of the collaborative planning process, survey respondents compare it with
Table 5.21. Summary of the Linear Regression Models

<table>
<thead>
<tr>
<th>Indices, Scales and their Components</th>
<th>Number of Models Significant (out of)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indices</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Member Factors Index</td>
</tr>
<tr>
<td>• Inclusion of all affected stakeholders</td>
<td>6</td>
</tr>
<tr>
<td>• Magnitude of stakeholder incentives</td>
<td></td>
</tr>
<tr>
<td>• Commitment of the collaboration participants</td>
<td></td>
</tr>
<tr>
<td>• Effective leadership for the collaboration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relationship Index</td>
</tr>
<tr>
<td>• Equity in decision making</td>
<td>3</td>
</tr>
<tr>
<td>• Power distribution among the parties</td>
<td></td>
</tr>
<tr>
<td>• Agreement on ground rules</td>
<td></td>
</tr>
<tr>
<td>• Proportional representation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Decision Making Index</td>
</tr>
<tr>
<td>• Agreement on the scope of the collaboration</td>
<td>3</td>
</tr>
<tr>
<td>• Shared ideology / common ground</td>
<td></td>
</tr>
<tr>
<td>• Negotiating in good faith</td>
<td></td>
</tr>
<tr>
<td>• Existence of trust in the relationships</td>
<td></td>
</tr>
<tr>
<td>• Maintaining good interpersonal relationships</td>
<td></td>
</tr>
<tr>
<td>• Establishing open lines of communication</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Resource Factors Index</td>
</tr>
<tr>
<td>• Political support</td>
<td>0</td>
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<tr>
<td>• Funding</td>
<td></td>
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<tr>
<td>• Resource commitment</td>
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<td>Scales</td>
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<td>Relationship and Equity Scale</td>
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<tr>
<td>• Existence of trust in the relationships</td>
<td>6</td>
</tr>
<tr>
<td>• Maintaining good interpersonal relationships</td>
<td></td>
</tr>
<tr>
<td>• Establishing open lines of communication</td>
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<tr>
<td>• Negotiating in good faith</td>
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<tr>
<td>• Shared ideology / common ground</td>
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<tr>
<td>• Equity in decision making</td>
<td></td>
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<tr>
<td>• Power distribution among the parties</td>
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<td></td>
<td>Participant Characteristics and Agreement Scale</td>
</tr>
<tr>
<td>• Proportional representation</td>
<td></td>
</tr>
<tr>
<td>• Inclusion of all affected stakeholders</td>
<td></td>
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<tr>
<td>• Agreement on the scope of the collaboration</td>
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<tr>
<td>• Agreement on ground rules</td>
<td></td>
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<tr>
<td>• Effective leadership for the collaboration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Commitment and Support Scale</td>
</tr>
<tr>
<td>• Political support</td>
<td>2</td>
</tr>
<tr>
<td>• Funding</td>
<td></td>
</tr>
<tr>
<td>• Resource commitment</td>
<td></td>
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<tr>
<td>• Magnitude of stakeholder incentives</td>
<td></td>
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<tr>
<td>• Commitment of the collaboration participants</td>
<td></td>
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<tr>
<td><strong>Individual Variables</strong></td>
<td></td>
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<tr>
<td></td>
<td>Ripeness of the issue</td>
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<tr>
<td></td>
<td>Representative status</td>
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<tr>
<td></td>
<td>Focus of power</td>
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<td></td>
<td>Focus of control</td>
</tr>
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<td></td>
<td>Focus of goals</td>
</tr>
</tbody>
</table>
the alternative of a single agency with authority making decisions, rather than a contentious decision making process that involves lengthy appeals and court battles and conclude therefore, that collaborative processes are less efficient. As Leach et al. (2002: 653) note “longevity (or time) can also be viewed as a cost of cooperation rather than a benefit” in this sense.

If we only examine the models with component-based scale independent variables the characteristics of the participants and the agreement and relationships among them are the two most important predictors of success overall. A possible reason for commitment and support not being equally important might be due to the focus of this study which looks at the plan preparation process rather than implementation. This requires significantly fewer financial resources. But at a stage in which key decisions are made, who is at the table, how much they agree on the decision rules and scope, and how well they get along is of utmost importance. Another important factor is the timing of the collaborative effort and the ripeness of the issue. If there is disagreement over the importance of the issue or the necessity to take action, there will not be incentives to participate or commitment to the effort.

The independent variables used in this research explain subjective measure of success best (adjusted $R^2 = 0.589$) when the independent variables are measured through component-based scales. The next best-explained dependent variables are objective success index and goal realization scale. The regression models based on component-based scales provide stronger support for the hypothesized influence of the determinants of success. Model 19 is the best overall model in the sense of having the most number of independent variables significantly related to the dependent variable. This model suggests that when the relationship between the parties is good and there is equity among them, when all affected stakeholders participate, are proportionally represented, have effective leadership, agree on the ground rules and the scope of the collaboration, and when there is internal and external commitment, and adequate resources and political support, the collaboration tends to be successful in the sense of realization of goals such as achieving each party’s goals, producing an outcome that is equitable, resolving the real issues in dispute, producing joint gains for the parties, and conforming to available objective standards. These collaborations are also successful in the sense that the parties feel they affected the substance of the plan and they are willing to implement the decision. Compared to model 19, model 8, which uses averaged indices for independent variables, has only member factors and relationship indices, issue ripeness, and representative status statistically significant.
Overall satisfaction is positively related with the relationship and equity between the parties and issue ripeness when component-based scales are used as independent variables (Model 18). It is positively related with member factors and issue ripeness when averaged indices are used as independent variables (Model 7). When there is proportional representation, inclusion of all affected stakeholders, agreement on the scope of the collaboration and on the decision-making process, and effective leadership for the collaboration relationship between the parties is enhanced in terms of improved communication, working relationships, and trust and respect among collaboration participants (Model 20). However, when independent variables are averaged into indices rather than constructing component-based scales, member factors enhance the relationships between the parties.

When the relationship between the parties is good, there is equity and agreement between them, and participants have the necessary characteristics for good collaboration (see Table 5.14, Component 2) then the participants are more satisfied (Model 15) and feel that more of their goals are achieved (Model 14). The fact that the same determinants are important for both goal realization and satisfaction of the collaboration participants show that these two things are linked. When their goals are achieved, collaboration participants are satisfied. Because of this relationship between these two phenomena, in the Principal Component Analysis of the dependent variables, some variables that make up the goal realization index and the satisfaction index are grouped together in the goal realization scale (see Table 5.7). When the averaged indices are used as independent variables rather than the component-based scales, this parallel between the two models disappears. Model 3 shows a significant relationship between the decision making index and goal realization while Model 4 shows a relationship between member factors, issue ripeness and satisfaction of collaboration participants.

Of the determinants, only the participant characteristics and agreement scale is related to capacity building when the independent variables are component-based scales (Model 21) and only the decision making index is significant when independent variables are averaged indices (Model 10).

There are some differences between the subjective success measure and objective overall success index (Models 12 and 13). While survey respondents perceive collaborative planning processes to be more successful when the relationship between the parties is good and there is equity between them, the most important determinant is participant characteristics and agreement
when success is measured objectively with the 16 survey questions. Models 1 and 2, which use averaged indices as independent variables, show that member factors are related to both the objective and the subjective measures of success. However, the relationship index is only related to subjective success, while the decision making index and issue ripeness are only related to the objective success measure.

These results are consistent with other research conducted on similar topics. The Watershed Partnerships Project at the University of California, Davis, (Watershed Partnerships Project, 2002; Leach et al., 2002) is comparable to this study in many ways. In that project, the researchers measure the dependent variable of success in terms of outcomes, actions and agreements. The dependent variables of perceived impacts of the partnership on specific problems in the watershed, implementation of restoration projects, education and outreach projects, and monitoring projects are analogous to realization of goals in this research. In addition to the above, in the WPP, the researchers use perceived impacts of the partnership on human and social capital and the extent of agreement reached among the stakeholders as measures of success. The two “perceived impacts” variables are indices composed of responses to several survey questions and are regarded as subjective measures of success, the rest are indices constructed using data collected through interviews or from documents and are objective measures.\textsuperscript{17} The WPP survey measurement scale is an ordinal 7-point Likert scale and multiple responses for each partnership are averaged to calculate the partnership scores. The researchers in the WPP perform regression analyses both at the respondent level and at the case level. Because their n of 50 does not allow them to use all 25 explanatory variables in the case level analysis, they use 12 of these that are most prominent in the literature and that were significant or nearly significant in the respondent level regression analysis.

The WPP researchers also find that broad representation, committed participants, trust, and well-defined decision rules increase the likelihood of watershed partnership success. These results are consistent with this study’s findings. Existence of trust is the most important contributing variable to the relationship and equity scale that is significant in 6 of the 9 models tested here. Broad representation (inclusion of all stakeholders) and agreed upon decision rules

\textsuperscript{17} In contrast to this study, the WPP researchers consider data from survey responses as subjective and the indices they create from examination of documents and interview data as objective.
are part of the participant characteristics and agreement scale that is significant in 6 of the 9 models. Finally, commitment is part of the commitment and support scale which is significant in 2 models.

VI. Conclusions

The results support the hypothesis that most of the member factors, process factors, and resource factors influence the success of a collaboration. However, due to multicollinearity between the independent variables it is not possible to investigate the individual contributions of each factor to success.

To deal with this issue a factor analysis was performed to identify independent variables that measure similar constructs and component-based scales were constructed for some of the correlated independent variables. The models show clearly that the relationship between the parties, equity in decision making, participant characteristics (inclusion of all affected stakeholders, proportional representation, and effective leadership), agreement between the participants on ground rules and the scope of the collaboration, and ripeness of the issue are important for collaboration success no matter how success is measured.

The availability of mediators variable scored unexpectedly low as a determinant of success. Further examination showed that the term mediator was not sufficiently explained and as a result most respondents did not understand the question. Mulford and Rogers’s (1982) typology for the organization and centralization of collaborations could not be utilized as a whole in this analysis because the collaborations studied here did not consistently fit the individual categories of the typology on all dimensions, but rather showed characteristics of different categories for different dimensions. As a result instead of using the typology as a determinant, the dimensions were tested separately.

The next chapter includes an analysis of the open-ended questions on the measures and the determinants of success and attempts to develop a more complete theoretical frame for both evaluation of success and determinants of success for future research.
In addition to collecting the data on the identified measures and determinants of success presented in Chapter 5, the survey used in this study also asked the respondents three open-ended questions to determine how they evaluate the success of collaborations and what factors helped/hindered the success of their particular initiative. This way, the measures and determinants of success that were not mentioned in the literature or not identified by the researcher, but considered influential by survey respondents are captured. Obviously, these measures and determinants cannot be included in the quantitative analysis. However, this chapter should shed some light on the perceptions of the collaboration participants in terms of how they evaluate success as well as what they believe influences the success of collaborative planning. In order to avoid biasing the respondents, the open-ended questions were asked before the specific questions on the measures and determinants of success identified from the relevant literature (see Appendix A).

The purpose of this chapter is to analyze the data gathered from these open-ended questions as well as from the comments written in the space provided on the last page of the survey. The aim is to develop a more complete theoretical frame for both evaluation of success and identification of determinants of success that would be useful for future research.

It is difficult to prepare a survey that would be applicable to six different natural resource management programs each of which, as one survey respondent points out about Remedial Action Planning, is sometimes managed differently even within a single state. Thoemke (1986) notes that various management approaches are employed at different National Estuarine...
Research Reserves due to differences in urban vs. natural locations, physical/biological characteristics and the surrounding environment. Generalized terminology was used in the survey to make it applicable to all 6 programs. During the process of identifying the universe of cases within these programs some informants claimed that their process was atypical. While this might be true in some aspects, the researcher believes that there are enough similarities between the cases to make them comparable. Answers to the open-ended questions and additional comments provided by the respondents confirm that the cases are more similar than they are different.

Since the open-ended questions ask the participants their personal views on success and its determinants, the unit of analysis for this chapter is the survey respondent rather than the case. The dataset includes responses from the 168 final surveys as well as the 6 pretest instruments. Of the 174 surveys only 10 respondents chose not to answer all of the open-ended questions, and 2 respondents listed measures of success but not determinants of success. There are more than 230 comments on measures of success, more than 450 about factors that helped success and more than 250 about factors that hindered success. These comments are grouped into thematic categories based on the framework developed in chapters 2 and 3 adding new dependent and independent variables to the lists in tables 4.1 and 4.2. Appendix C presents the complete list of categorized responses to the three open-ended questions on the measures and determinants of success. The last section of each list contains a category called “others” which includes single comments that do not fit in any of the categories and are mostly out of context or incomprehensible.

The confusion in the collaboration literature about how to evaluate success and what leads to it is reflected in the responses to the survey questions in this study as well. Some of the variables regarded as determinants of success in this study are mentioned as measures of success by some respondents and in a few cases the opposite occurred. From among the variables categorized as measures of success in this study several are mentioned as determinants of success a few times: realization of ecological goals, approval and adoption of a plan, plan quality, whether the outcome resolves the issues in dispute, and conformance of the solution to available objective standards. On the other hand, most of the determinants of success identified in the literature are also mentioned as measures of success by the survey respondents: inclusion of all affected stakeholders, magnitude of stakeholder incentives, commitment to collaboration
process, leadership, agreement on ground rules and decision making process, rank of participating agency representatives, resource commitment, focus of collaboration goals, shared ideology/common ground among participants, negotiating in good faith, maintaining good interpersonal relationships, establishing clear lines of communication, political support, and funding. This might be due to the ordering of the questions where the question on measures of success comes first, but it also may be due partly to the confusion on what is success and what influences it.

Because the main aim of this research is to identify these factors and quantify their prevalence, any mention of a factor that is considered to be a determinant of success in this study is listed under the determinants list even if the respondent mentioned the factor as a measure of success and vice versa. The responses that were moved from one list to the other are marked with an asterix (*) bullet in Appendix C. For dependent variables 5 out of 225 responses (2 percent) were listed as determinants of success. For independent variables 90 out of 700 (13 percent) were listed as measures of success. The original language and phrases of the respondents were kept exactly as is on the three lists except when the identity of individuals or the case in question was revealed or an acronym was used.

I. Measures of Success

Table 6.1 presents the frequencies of categorized responses to the open-ended question on the measures of success. The survey responses indicate that most of the participants evaluate the success of collaborative planning process first and foremost by realization of goals. The 164 respondents who answered the question mentioned 173 specific items that relate to realization of goals. Comparatively, the next largest category, satisfaction of collaboration participants is mentioned only 25 times. There are 11 mentions of durability of the agreement, 8 mentions each of efficiency and enhanced interorganizational relations.

Realization of a variety of goals is used to judge the success of collaborative planning processes by the survey respondents. There are 28 mentions of specific ecological goals and 21 mentions of conformance of the solution to available objective standards. None of the respondents indicated explicitly that they evaluate success of a collaborative initiative by comparing the solution to objective standards but they indicated specific standards such as practicality, environmental soundness, use of scientific information, technical validity, conformance to statutory requirements, increase in desirable attributes and amenities, as well as
Table 6.1. Responses to Question 14: “Please explain what characteristics you use to judge the success of this collaborative planning process”

<table>
<thead>
<tr>
<th>OUTCOME VARIABLES</th>
<th>Number of mentions</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Realization of goals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Realization of goals: general</td>
<td>17</td>
<td>10.4</td>
</tr>
<tr>
<td>⇒ Realization of ecological goals</td>
<td>28</td>
<td>17.1</td>
</tr>
<tr>
<td>⇒ Problem identification</td>
<td>5</td>
<td>3.0</td>
</tr>
<tr>
<td>⇒ Production of an agreement or a plan</td>
<td>14</td>
<td>8.5</td>
</tr>
<tr>
<td>⇒ Approval or adoption of a plan</td>
<td>8 (1)</td>
<td>4.9</td>
</tr>
<tr>
<td>⇒ Acceptance or support of the plan</td>
<td>21</td>
<td>12.8</td>
</tr>
<tr>
<td>⇒ Product quality</td>
<td>12 (1)</td>
<td>7.3</td>
</tr>
<tr>
<td>⇒ Implementation</td>
<td>22</td>
<td>13.4</td>
</tr>
<tr>
<td>⇒ Implementation safeguards</td>
<td>6</td>
<td>3.7</td>
</tr>
<tr>
<td>⇒ Achieving each party’s goals</td>
<td>4</td>
<td>2.4</td>
</tr>
<tr>
<td>⇒ Achieving own party’s goals</td>
<td>4</td>
<td>2.4</td>
</tr>
<tr>
<td>⇒ Capacity-building of organizations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>❖ Acquisition of new resources (technology, labor, funds, or equipment)</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>❖ Acquired knowledge, information, or expertise</td>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td>❖ Acquired knowledge that resulted in new decision-making structures and/or processes</td>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td>⇒ Whether the outcome resolves the real issues in dispute</td>
<td>7 (1)</td>
<td>4.3</td>
</tr>
<tr>
<td>⇒ Conformance of the solution to available objective standards</td>
<td>21 (2)</td>
<td>12.8</td>
</tr>
<tr>
<td>● Durability of the agreement</td>
<td>11</td>
<td>6.7</td>
</tr>
<tr>
<td>● Enhanced interorganizational relations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Improved communication among collaboration participants</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>⇒ Improved working relationships among collaboration participants</td>
<td>4</td>
<td>2.4</td>
</tr>
<tr>
<td>⇒ Building trust and respect among collaboration participants</td>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>● Satisfaction of collaboration participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Overall satisfaction of the participants</td>
<td>10</td>
<td>6.1</td>
</tr>
<tr>
<td>⇒ Do the parties feel they affected the substance of the plan?</td>
<td>6</td>
<td>3.7</td>
</tr>
<tr>
<td>⇒ Does the agreement produce joint gains for the parties?</td>
<td>5</td>
<td>3.0</td>
</tr>
<tr>
<td>⇒ Willingness of the stakeholders to implement the decision</td>
<td>4</td>
<td>2.4</td>
</tr>
<tr>
<td>⇒ Equity in the outcomes</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>● Efficiency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Efficiency: general</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>⇒ Resource efficiency</td>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>⇒ Time efficiency</td>
<td>4</td>
<td>2.4</td>
</tr>
</tbody>
</table>

Boldfaced items were identified from the theoretical or empirical literature before data collection for this study began. The normal font indicates items that emerged from the survey responses. Numbers in parenthesis indicate the subset of items that were given as a response to determinants of success rather than measures of success.
planning approaches such as ecosystem management, sustainability, and adaptive management (see Appendix C).

Another important goal used to judge success is implementation. There are 22 mentions of whether the plan or projects are implemented, or are implementable and 6 mentions of having implementation safeguards. There are a series of goals related to producing a plan or an agreement. These include 5 mentions of problem identification, 14 mentions of production of an agreement or a plan, and 12 mentions of product quality. A related item, whether the outcome resolves the issues in dispute, received 7 mentions. Approval of a plan is perceived as important. Eight respondents mention approval or adoption of a plan, 21 mention acceptance or support of the plan: “Participating organizations failed to follow through on the ratification process intended in pre process, significantly weakening the outcome” complained one respondent. In addition, there were 17 mentions of realization of goals in general, 4 mentions of achieving each party’s goals, and 4 mentions of achieving the goals of the respondent’s party. Similar to the quantitative analysis results (Figure 5.1), capacity building variables received very low responses. Specifically, acquisition of new resources and equity in outcomes were not mentioned by any respondent.

Even though the six natural resource management programs studied here are in general considered successful and collaborative, background research before data collection illustrated that not all measures of success were satisfied by these cases. For example, in spite of the fact that SWIM plans are required to be updated every three years, a significant number of them were found to be out of date. Out of the six prepared by the Suwannee River Water Management District (SRWMD) the most recent one was revised in 1995, the other five dated from 1991. The reasons given for this were a combination of the following factors: the plans have not yet been fully implemented, therefore they are still applicable; limited staff time and limited or no funding for the program. The SRWMD preferred to spend the limited staff time and funding for active projects rather than the “bureaucratic task of plan update” (M. Raulston, personal communication, April 12, 2001). In other cases there were draft plans that were never adopted. These cases are not captured in this study because only the cases that updated their plans since 1997 are included in the survey. This might not be unique to the SWIM plans. The quantitative analysis did not show any evidence of significant relationships between the type of case and the dependent variables. It is evident that none of these programs are uniformly applied.
Enhanced interorganizational relations were not mentioned by many respondents among the criteria they use to judge collaboration success, even though they are a usual outcome of successful collaborative initiatives. Gunton et al. (2003) report that in the 15 collaborative land use planning practices they examined in British Columbia through a participant survey 84 percent of the respondents agreed that the process improved working relationships. One respondent in this study commented that “[a]t times politics were extremely difficult to overcome. Some participants felt the program would upset their autonomy and were somewhat reluctant to be open and honest. But over time, it became less of an issue. I guess this was an exercise in building trust.” Another noted that “[c]ommunication between [the regulatory agency] and local residents was greatly improved over the process.”

Table 6.1 shows that the new measures of success that have emerged from the analysis of the responses to the open-ended survey questions are specific types of goals most of which are mentioned more frequently than many of the measures identified from the literature. This indicates that the respondents evaluate the success of collaborative planning using somewhat different criteria than the ones included in the framework developed for this study. This difference may be at the root of the divergence between the linear regression models using objective and subjective variables of success as dependent variables in Chapter 5.

This study focuses on collaborative planning and decision making, not implementation. However, survey results highlight the difficulties faced when trying to make such a distinction. As mentioned above, many respondents measure the success of the decision making process by implementation of the decisions and the actual outcomes on the ground. From a participant point of view a process that is unsuccessful in implementation is not considered successful as a decision making process either. The way they see it “[p]reparing a plan is the easy part. Implementation is hard!” [emphasis original]. “No matter how good the recommendation, it will not work unless fully implemented.”

II. Determinants of Success

Two questions were asked to identify the determinants of success. One focused on the factors that contributed to success and one on the factors that hindered success. The responses are presented separately first and then combined to show the most influential determinants according to the collaboration participants. Table 6.2 shows the factors that positively influenced
Table 6.2. Responses to Question 15a: “Please describe the factors that you think positively influenced the success of this collaboration”

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Number of mentions</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Member Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Inclusion/participation of stakeholders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Inclusion of all affected stakeholders</td>
<td>9 (2)</td>
<td>5.6</td>
</tr>
<tr>
<td>⇒ Inclusion of key stakeholders</td>
<td>8</td>
<td>4.9</td>
</tr>
<tr>
<td>⇒ Multistakeholder involvement</td>
<td>22 (4)</td>
<td>13.6</td>
</tr>
<tr>
<td>⇒ Public participation/input</td>
<td>41 (18)</td>
<td>25.3</td>
</tr>
<tr>
<td>⇒ Education and outreach</td>
<td>12 (3)</td>
<td>7.4</td>
</tr>
<tr>
<td>• Magnitude of stakeholder incentives</td>
<td>3 (1)</td>
<td>1.9</td>
</tr>
<tr>
<td>• Commitment of the collaboration participants to the collaboration process</td>
<td>38 (9)</td>
<td>23.5</td>
</tr>
<tr>
<td>• Effective leadership for the collaboration</td>
<td>16 (1)</td>
<td>9.9</td>
</tr>
<tr>
<td>• Agency characteristics and attitudes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Flexibility of organizations</td>
<td>4 (1)</td>
<td>2.5</td>
</tr>
<tr>
<td>⇒ Agency turf</td>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td>⇒ Lack of turnover and institutional memory</td>
<td>6 (3)</td>
<td>3.7</td>
</tr>
<tr>
<td>• Representative characteristics and attitudes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Enthusiasm</td>
<td>3</td>
<td>1.9</td>
</tr>
<tr>
<td>⇒ Personalities</td>
<td>5</td>
<td>3.1</td>
</tr>
<tr>
<td>⇒ Politics</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>⇒ Patience</td>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Process Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ripeness of the issue / Timing</td>
<td>14</td>
<td>8.6</td>
</tr>
<tr>
<td>• Decision-making structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Equity in decision making</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>⇒ Power distribution among the parties</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>⇒ Agreement on ground rules and decision-making process</td>
<td>13 (6)</td>
<td>8.0</td>
</tr>
<tr>
<td>⇒ Proportional representation</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>• Availability of mediators during crisis points in decision making</td>
<td>6</td>
<td>3.7</td>
</tr>
<tr>
<td>• Organization and centralization of the collaboration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Rank of the participating agency representatives</td>
<td>3 (1)</td>
<td>1.9</td>
</tr>
<tr>
<td>⇒ Degree of formalization of the collaboration</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>⇒ Level of resource commitment to the collaboration</td>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td>⇒ Focus of power in the collaboration</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>⇒ Focus of control in the collaboration</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>⇒ Focus of collaboration goals</td>
<td>1(1)</td>
<td>0.6</td>
</tr>
<tr>
<td>• The relationship between the parties</td>
<td></td>
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</tr>
<tr>
<td>⇒ Agreement on the scope of the collaboration</td>
<td>5</td>
<td>3.1</td>
</tr>
<tr>
<td>⇒ Shared ideology / common ground among participants</td>
<td>21 (7)</td>
<td>13.0</td>
</tr>
<tr>
<td>⇒ Negotiating in good faith</td>
<td>11 (2)</td>
<td>6.8</td>
</tr>
<tr>
<td>⇒ Existence of trust in the relationships</td>
<td>7</td>
<td>4.3</td>
</tr>
<tr>
<td>⇒ Maintaining good interpersonal relationships among participants</td>
<td>21 (2)</td>
<td>13.0</td>
</tr>
<tr>
<td>⇒ Establishing clear lines of communication</td>
<td>23 (4)</td>
<td>14.2</td>
</tr>
<tr>
<td>⇒ Coordination and cooperation between the parties</td>
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<td>14.8</td>
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150
Table 6.2. - Continued

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<td></td>
</tr>
<tr>
<td>- Professional and technical capacities</td>
<td></td>
<td></td>
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<tr>
<td>⇒ Relevant professional and technical capacities: general</td>
<td>28</td>
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</tr>
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<td>⇒ Availability of scientific/technical information</td>
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</tr>
<tr>
<td>⇒ Science-based solutions</td>
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<td>3.1</td>
</tr>
<tr>
<td>⇒ Building on existing work</td>
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<td></td>
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<td>- Political support</td>
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<td>14.2</td>
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<td>- Funding</td>
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<td>19.8</td>
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<td><strong>Project Factors</strong></td>
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<td>- Time</td>
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<td>3.1</td>
</tr>
<tr>
<td>- Cost</td>
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</tr>
<tr>
<td>- Geographic scope</td>
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</tr>
<tr>
<td>- Authority</td>
<td>1</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Boldfaced items were identified from the theoretical or empirical literature before data collection for this study began. The normal font indicates items that emerged from the survey responses. Numbers in parenthesis indicate the subset of items that were given as a response to measures of success rather than determinants of success.

success according to the respondents. This list provides some new variables as well as lending support to some of the variables identified from the collaboration literature.

The most recurring themes are the relationship between the parties mentioned by 112 respondents and inclusion and participation of stakeholders mentioned by 92 of the 162 respondents who have answered this question. Relationship between the parties and inclusion and participation of stakeholders is followed by professional and technical capacities mentioned by 58, resource factors mentioned by 55, and commitment mentioned by 38 respondents.

The rest of the factors have comparatively few responses: effective leadership is mentioned 16 times, ripeness of the issue and decision making structure 14 times each, agency characteristics and attitudes 12 times, representative characteristics and attitudes 11 times, project factors 10 times, availability of mediators at crisis points in decision making and organization and centralization of the collaboration 6 times each, and magnitude of stakeholder incentives 3 times.
Of the variables in the “relationship between the parties” category, *coordination and cooperation between the parties*, a new variable that emerged from the survey responses, is the most frequently mentioned (24 times). The concept of collaboration as defined in this study includes coordination and cooperation as forms of collaboration. It is interesting to note that quite a few respondents view coordination and cooperation as determinants of collaboration. This is further evidence about the confusion of terminology in people’s minds about these concepts.

*Establishing clear lines of communication* (23 times), *shared ideology/common ground among participants* and *maintaining good interpersonal relationships among participants* (21 times each) are mentioned with frequencies similar to coordination and cooperation. *Negotiating in good faith* is mentioned 11 times, while *trust* and *agreement on the scope of the collaboration* have lower response frequencies with 7 and 5 mentions respectively.

The most frequently listed determinant of success related to “inclusion/participation of stakeholders” is *public participation and input* mentioned by 41 respondents. This is also the most frequently mentioned positive determinant of success overall. This is a new determinant of success that was not previously mentioned in the literature. Public participation and input is viewed as very important because, as one survey respondent commented, “Change usually comes from [the] bottom up … Continued influence of [the] Citizen Advisory Committee [is] very important – They are key to success.” According to the same respondent, education and outreach is important because it is directly linked to one of the measures of success: “Outreach and education of [the] public plays big part in acceptance of [the] plan.” Table 6.2 shows that almost half of the comments on public participation and input were made as responses to the measures of success question. This might be due to the fact that sometimes public participation is seen more as an end in itself and stakeholders judge a process successful if there are high levels of participation.

Public participation and input is followed by *multistakeholder involvement* mentioned 22 times, *education and outreach* mentioned 12 times, *inclusion of all affected stakeholders* mentioned 9 times, and *inclusion of key stakeholders* mentioned 8 times.

*Commitment of the participants to the collaboration process* is the second most frequently mentioned determinant of success in this study. Among the “professional and technical capacities” variables, having *relevant professional and technical capacities in general*
is mentioned as influencing success 28 times, while *availability of scientific/technical information* is mentioned 18 times. Seven respondents indicated *building on existing work* and 5 mentioned *science-based solutions*. The availability and use of scientific information was not mentioned in the literature, therefore this variable was excluded from the theoretical framework. The results might be peculiar to the set of cases examined in this study which all focus on natural resource management and mostly deal with environmental pollution among other things. Most of the Great Lakes Areas of Critical Concern for which Remedial Action Plans are being prepared include Superfund sites. Clean up of these and other environmental restoration projects require substantial scientific input. This is also true for the Habitat Conservation Plans which rely on judgments about critical habitat for endangered species.

Thirty-two respondents mentioned *funding* and 23 mentioned *political support* from the “resource factors” category. Comments about funding cover a wide range of issues ranging from having available funding for planning, research, or implementation to funding for specific projects. Political support includes backing by local or state and federal elected officials as well as support of local, state, and federal governmental agencies.

Almost 9 percent of the respondents mentioned factors related with the *ripeness of the issue* including timing, urgency of the need to act, and interest and concern about the problem.

Table 6.3 presents the factors that negatively influenced success according to the respondents. *Agency and representative characteristics and attitudes* are the factors most frequently mentioned as hindering success with 44 respondents mentioning each category. *Resource factors* are mentioned by 41 respondents, *organization and centralization of the collaboration* by 33 respondents, *project factors* by 32 respondents, and *inclusion and participation of stakeholders* by 23 respondents, while the *relationship between the parties* is mentioned 13 times, *professional and technical capacities* 9 times, and *decision making structure* 3 times.

Among “agency characteristics and attitudes,” *inflexibility of organizations* and *staff turnover* are the two most frequent categories mentioned by 8.6 and 6.2 percent of the respondents respectively. Inflexibility has to do with individual agencies having formal rules and procedures that are too restrictive or being reluctant to change policies and behavior. Staff turnover seems to be a major problem plaguing agencies involved in natural resource management. This phenomenon was observed while contact information was being compiled for
Table 6.3. Responses to Question 15b: “Please describe the factors that you think negatively influenced the success of this collaboration”

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<tr>
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<th>%</th>
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<td><strong>Member Factors</strong></td>
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<tr>
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<td></td>
</tr>
<tr>
<td>⇒ Inclusion of all affected stakeholders</td>
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<td>7.4</td>
</tr>
<tr>
<td>⇒ Multistakeholder involvement</td>
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<td>2.5</td>
</tr>
<tr>
<td>⇒ Lack of public participation/input</td>
<td>6</td>
<td>3.7</td>
</tr>
<tr>
<td>⇒ Education and outreach</td>
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</tr>
<tr>
<td>• Magnitude of stakeholder incentives</td>
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<td>0.0</td>
</tr>
<tr>
<td>• Commitment of the collaboration participants to the collaboration process</td>
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</tr>
<tr>
<td>• Effective leadership for the collaboration</td>
<td>5</td>
<td>3.1</td>
</tr>
<tr>
<td>• Agency characteristics and attitudes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Ignoring public input/concerns by parties</td>
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<td>⇒ Inflexibility of organizations</td>
<td>14 (1)</td>
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</tr>
<tr>
<td>⇒ Agency turf</td>
<td>8</td>
<td>4.9</td>
</tr>
<tr>
<td>⇒ Staff turnover</td>
<td>10</td>
<td>6.2</td>
</tr>
<tr>
<td>⇒ Bureaucracy/inefficiency</td>
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</tr>
<tr>
<td>⇒ Inconsistency</td>
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<td>1.9</td>
</tr>
<tr>
<td>• Representative characteristics and attitudes</td>
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<td>⇒ Lack of enthusiasm</td>
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<td>0.6</td>
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<td>⇒ Personalities</td>
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<td>4.3</td>
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<td>⇒ Politics</td>
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<td>⇒ Hidden agendas</td>
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<td>⇒ Sabotage</td>
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<td>3.7</td>
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<td>2</td>
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<td>⇒ Public apathy</td>
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<td>1.9</td>
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<td>⇒ Lack of knowledge and understanding</td>
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<tr>
<td>⇒ Ideological opposition</td>
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<td>2.5</td>
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<tr>
<td><strong>Process Factors</strong></td>
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<tr>
<td>• Ripeness of the issue / Timing</td>
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<tr>
<td>• Decision-making structure</td>
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<tr>
<td>⇒ Equity in decision making</td>
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<td>0.6</td>
</tr>
<tr>
<td>⇒ Power distribution among the parties</td>
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<td>1.2</td>
</tr>
<tr>
<td>⇒ Agreement on ground rules and decision-making process</td>
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<tr>
<td>⇒ Proportional representation</td>
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<tr>
<td>• Availability of mediators during crisis points in decision making</td>
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<tr>
<td>• Organization and centralization of the collaboration</td>
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<tr>
<td>⇒ Rank of the participating agency representatives</td>
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<tr>
<td>⇒ Degree of formalization of the collaboration</td>
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<tr>
<td>⇒ Level of resource commitment to the collaboration</td>
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<tr>
<td>⇒ Focus of power in the collaboration</td>
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<td>0.0</td>
</tr>
<tr>
<td>⇒ Focus of control in the collaboration</td>
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<tr>
<td>⇒ Focus of collaboration goals</td>
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Table 6.3. - Continued

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<tr>
<td>• The relationship between the parties</td>
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<tr>
<td>⇒ Agreement on the scope of the collaboration</td>
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<td>0.6</td>
</tr>
<tr>
<td>⇒ Shared ideology / common ground among participants</td>
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<td>0.0</td>
</tr>
<tr>
<td>⇒ Negotiating in good faith</td>
<td>0</td>
<td>0.0</td>
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<tr>
<td>⇒ Existence of trust in the relationships</td>
<td>8</td>
<td>4.9</td>
</tr>
<tr>
<td>⇒ Maintaining good interpersonal relationships among participants</td>
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<td>0.0</td>
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<tr>
<td>⇒ Establishing clear lines of communication</td>
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<tr>
<td>⇒ Lack of coordination and cooperation between the parties</td>
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<td>• Professional and technical capacities</td>
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<tr>
<td>⇒ Relevant professional and technical capacities: General</td>
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<td>⇒ Lack of scientific/technical information</td>
<td>6</td>
<td>3.7</td>
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<td>⇒ Science-based solutions</td>
<td>1</td>
<td>0.6</td>
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<td><strong>Resource Factors</strong></td>
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<td>• Funding</td>
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<td><strong>Project Factors</strong></td>
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<td>• Time required for collaboration</td>
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<td>• Cost</td>
<td>4</td>
<td>2.5</td>
</tr>
<tr>
<td>• Geographic scope too broad</td>
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<tr>
<td>• Issue scope too broad/complex</td>
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<tr>
<td>• Staff changes at state/federal level</td>
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<td>1.2</td>
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</tbody>
</table>

**Boldfaced** items were identified from the theoretical or empirical literature before data collection for this study began. The normal font indicates items that emerged from the survey responses. Numbers in parenthesis indicate the subset of items that were given as a response to measures of success rather than determinants of success.

this study. Websites and databases are often outdated and available contact information is highly inaccurate due to high turnover of agency staff. Some program coordinators named on websites or other documentation had moved elsewhere and sometimes new ones had not yet been appointed. The continuity of staff and institutional memory are particularly important for collaboration because it is a lengthy process. Continuity is even more important to plan implementation. One respondent argued that the implementation of the plan “has been less than successful” due to the fact that “[s]ome of the staff that were in on the original negotiations have moved on, and those who replaced them do not have the same perspective or understand the
intent. We find ourselves fending off “renegotiation” efforts, and feel that the plan is being misused as a regulatory tool” [emphasis original].

The most frequently mentioned “representative characteristic” hindering success of collaborative planning, lack of knowledge and understanding (5.6%), deals with either insufficient technical background of the public or general lack of knowledge about the issues. Among the “resource factors,” funding is mentioned by 21.6 percent of the respondents as an obstacle to collaboration success, the highest frequency of all negative determinants of success. The comments are mostly about lack of adequate funding either in general or for specific tasks, while control of money is also mentioned.

Lack of funding for the programs that are the focus of this study can be verified from other sources. Ostrom and Gittings (1996) point out minimal federal funding for one of the National Marine Sanctuaries, while Imperial and Hennessy (2002) note limited implementation funding provided by EPA for the Comprehensive Conservation and Management Plans of the National Estuary Programs.

The second most often mentioned obstacle is focus of collaboration goals (16%). This determinant mostly deals with the differing and sometimes conflicting priorities of collaborating parties who focus on their specific goals rather than the collaborative goals. Time required for collaboration is mentioned as an obstacle by 11.1 percent of the respondents who feel that collaborative processes take a long time. As an example, Beatley (1995b) points out that it may take 4 to 5 years for an HCP to be prepared and approved. Gunton et al. (2003: 19) point out that “[collaborative processes] take at least 48 months to achieve success and expediting the process increases the probability of failure.”

Some 7.4 percent of the respondents noted that exclusion of some parties from the collaborative initiative created an obstacle to success. In one case, a survey respondent reported that “[t]he collaborative process was upset, delayed and nearly derailed by powerful interests who were notable by their absence in meaningful discussions or who were actively trying to stop the process by using misinformation and disinformation” [emphasis original]. In another case “[m]arginalized players (especially environmentalists) suing and causing erosion of program benefits” is noted with the follow-up, “If I had to do it again, I would force certain participants to play or deny them a venue later” [emphasis original]. Exclusion of stakeholders from the process
by their choice or by force can have serious consequences for the collaboration. *Multistakeholder involvement* has hindered success according to 2.5 percent of the respondents.

None of the respondents mentioned magnitude of stakeholder incentives, ripeness of the issue, agreement on ground rules, proportional representation, resource commitment, focus of power, focus of control, shared ideology, negotiating in good faith, or maintaining good interpersonal relationships. Although mentioned only a few times, it is important to note the new variables that have emerged by examining the comments on obstacles to success. Ignoring public input and lack of knowledge and understanding have already been discussed. In addition, respondents noted agency and representative characteristics and attributes such as inflexibility of organizations, bureaucracy/inefficiency, inconsistency, hidden agendas, sabotage by some of the groups, shortsightedness, public apathy, and ideological opposition to government regulation as obstructs to collaboration success.

These cases were selected because they were successful to a certain degree. As a result, the percentages are higher in Table 6.1 which shows the facilitators of success than Table 6.2 which shows the obstacles. In fact, a total of 11.1 percent of the respondents either left the question on factors hindering success blank or answered “none” or “not applicable.”

**III. Conclusions**

Figure 6.1 combines the positive and negative determinants of success to give a complete picture of the determinants the respondents mentioned most frequently as influencing the success of their collaborative initiatives.\(^1\) Table 6.4 shows the specific percentages of each determinant presented in the figure. *Funding* is the most influential factor mentioned by 41.4 percent of the respondents half of which said availability of funding positively influenced the success of their initiative while the rest blamed lack of funding as responsible for not achieving success.

*Public participation and input* is the second most influential determinant with 29 percent of the respondents asserting its influence on success. It has already been demonstrated that collaboration participants view having public input as highly important for collaboration success. One determinant related to this is the regulatory agency’s attitude towards public input. One of the respondents stated that “[s]takeholder input uniformly was ignored creating very hostile

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\(^1\) Only determinants that have been mentioned by at least a total of 5 percent of the respondents (9 people out of 162 who responded to these questions) positively or negatively are included in the figure.
Figure 6.1. Major Determinants of Success Mentioned by Survey Respondents
Table 6.4. Determinants of Success Mentioned by Survey Respondents

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>% Positive</th>
<th>% Negative</th>
<th>% Total</th>
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<tbody>
<tr>
<td><strong>Process Factors</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>• Inclusion/participation of stakeholders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Inclusion of all affected stakeholders</td>
<td>5.6</td>
<td>7.4</td>
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<tr>
<td>⇒ Inclusion of key stakeholders</td>
<td>4.9</td>
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<td>4.9</td>
</tr>
<tr>
<td>⇒ Multistakeholder involvement</td>
<td>13.6</td>
<td>2.5</td>
<td>16.1</td>
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<td>⇒ Public participation/input</td>
<td>25.3</td>
<td>3.7</td>
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<td>⇒ Education and outreach</td>
<td>7.4</td>
<td>0.6</td>
<td>8.0</td>
</tr>
<tr>
<td>• Magnitude of stakeholder incentives</td>
<td>1.9</td>
<td>0.0</td>
<td>1.9</td>
</tr>
<tr>
<td>• Commitment of the to the collaboration process</td>
<td>23.5</td>
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<td>12.4</td>
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<tr>
<td>• Agency characteristics and attitudes</td>
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<tr>
<td>⇒ Attitude towards public input/concerns by parties</td>
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<td>3.1</td>
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<td>11.1</td>
</tr>
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<td>⇒ Agency turf</td>
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<td>4.9</td>
<td>6.1</td>
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<td>⇒ Staff turnover</td>
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<td>6.2</td>
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<td>⇒ Bureaucracy/inefficiency</td>
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<td>⇒ Inconsistency</td>
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<td>⇒ Politics</td>
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<td>⇒ Sabotage</td>
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<td>1.9</td>
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<td>⇒ Patience</td>
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<td>⇒ Knowledge and understanding</td>
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<td>2.5</td>
</tr>
<tr>
<td><strong>Process Factors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ripeness of the issue / Timing</td>
<td>8.6</td>
<td>0.0</td>
<td>8.6</td>
</tr>
<tr>
<td>• Decision-making structure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Equity in decision making</td>
<td>0.0</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>⇒ Power distribution among the parties</td>
<td>0.0</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>⇒ Agreement on ground rules and decision-making process</td>
<td>8.0</td>
<td>0.0</td>
<td>8.0</td>
</tr>
<tr>
<td>⇒ Proportional representation</td>
<td>0.6</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>• Availability of mediators during crisis points in decision making</td>
<td>3.7</td>
<td>0.6</td>
<td>4.3</td>
</tr>
<tr>
<td>• Organization and centralization of the collaboration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⇒ Rank of the participating agency representatives</td>
<td>1.9</td>
<td>3.0</td>
<td>4.9</td>
</tr>
<tr>
<td>⇒ Degree of formalization of the collaboration</td>
<td>0.0</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>⇒ Level of resource commitment to the collaboration</td>
<td>1.2</td>
<td>0.0</td>
<td>1.2</td>
</tr>
<tr>
<td>⇒ Focus of power in the collaboration</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>⇒ Focus of control in the collaboration</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>⇒ Focus of collaboration goals</td>
<td>0.6</td>
<td>16.0</td>
<td>16.6</td>
</tr>
</tbody>
</table>
feelings with many disaffected parties, including tribes, beneficiaries, forest industry, academia.” Although only 3.1 percent of the respondents specifically commented on ignoring public input as a barrier to successful collaboration, this might be due to the fact that in the cases where having public input is mentioned as crucial to success it is taken for granted that this input is taken into account in making decisions and reporting this might have been considered unnecessary and repetitive.

**Commitment to the collaboration process** mentioned by 24.1 percent of the respondents includes commitment to the specific goals of the collaboration initiative, dedication, perseverance, persistence, and willingness and desire of the parties to find a solution and “to go the extra mile.”

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**Table 6.4. - Continued**

| • The relationship between the parties | 3.1 | 0.6 | 4.7 |
| ⇒ Agreement on the scope of the collaboration | 3.1 | 0.6 | 4.7 |
| ⇒ Shared ideology / common ground among participants | 13.0 | 0.0 | 13.0 |
| ⇒ Negotiating in good faith | 6.8 | 0.0 | 6.8 |
| ⇒ Existence of trust in the relationships | 4.3 | 4.9 | 9.2 |
| ⇒ Maintaining good interpersonal relationships among participants | 13.0 | 0.0 | 13.0 |
| ⇒ Establishing clear lines of communication | 14.2 | 0.6 | 14.8 |
| ⇒ Lack of coordination and cooperation between the parties | 14.8 | 2.5 | 17.3 |

| • Professional and technical capacities | 17.3 | 1.2 | 18.5 |
| ⇒ Relevant professional and technical capacities: General | 17.3 | 1.2 | 18.5 |
| ⇒ Availability of scientific/technical information | 11.1 | 3.7 | 14.8 |
| ⇒ Science-based solutions | 3.1 | 0.6 | 4.7 |
| ⇒ Building on existing work | 4.3 | 0.0 | 0.0 |

| Resource Factors |
| 14.2 | 3.7 | 17.9 |

| • Political support |
| 19.8 | 21.6 | 41.4 |

| • Funding |
| 3.1 | 11.1 | 14.2 |

| • Time required for collaboration | 1.2 | 2.5 | 3.7 |
| • Cost |
| • Geographic scope | 1.2 | 3.1 | 4.3 |
| • Issue scope | 0.0 | 3.1 | 3.1 |
| • Authority | 0.6 | 0.0 | 0.0 |

| External Factors |
| 0.0 | 1.2 | 1.2 |

**Boldfaced** items were identified from the theoretical or empirical literature before data collection for this study began. The normal font indicates items that emerged from the survey responses.
Multistakeholder involvement, focus of goals, coordination and cooperation, technical capacity, and political support are mentioned by 15 to 20 percent of the respondents; inclusion of all affected stakeholders, effective leadership, flexibility, shared ideology, good interpersonal relationships, open communication, availability of scientific information, and time are mentioned by 10 to 15 percent of the respondents; and education and outreach, agency turf, staff turnover, politics, personalities of the representatives, lack of knowledge and understanding, ripeness of the issue, agreement on ground rules, good faith, and trust are mentioned by 5 to 10 percent of the respondents.

Figure 6.1 also illustrates that inclusion of affected stakeholders, flexibility, turf, staff turnover, personalities, politics, understanding/knowledge of the issues, focus of goals, and time are reported negatively and worked as obstacles to success more often in this particular set of cases whereas trust and funding are reported equally as facilitators and obstacles. All the other determinants positively influenced success in more instances.

Four new groups of variables emerged from the survey responses: (1) agency characteristics and attitudes, (2) representative characteristics and attitudes, (3) project attributes, and (4) external factors. Although they are not mentioned by a very large number of respondents (mentioned 56, 55, 42 and 2 times respectively), it is necessary to examine the importance of these variables in more detail in future research. “Agency characteristics and attitudes” deals with organizational behavior attributes such as flexibility of rules and applications, protecting agency turf, and having low staff turnover and institutional memory as well as attitudes towards public input, bureaucracy and efficiency, and inconsistency. Another new variable deals with the “characteristics and attitudes of the representatives” of collaborating agencies in terms of their enthusiasm, patience, involvement in political behavior, as well as personality, politics, hidden agendas, sabotage, shortsightedness, public apathy, lack of knowledge and understanding and ideological opposition. The third group of variables is related to “project attributes” such as time required for completion, cost, geographical scope, issue scope and having necessary authority. While all comments on time are about having sufficient time and not rushing the decisions, comments about geographic scope were related to the process being limited to a single jurisdiction. Finally, external factors are related to implications of staff changes in state and federal level to the policy environment.
Researchers in the Watershed Partnerships Project (2002) at the University of California, Davis, argue that there are conflicting assertions in the literature about the appropriate geographic scope for collaboration. While some argue “a broader, regional scope is necessary to accommodate large-scale ecological and political processes” (Innes et al., 1994 cited in Watershed Partnerships Project, 2002: 30), others claim that large watersheds increase the number of issues, interests, and travel distances and decrease the level of cooperative behavior, shared sense of place, and interdependence. While not many references were made to this issue in the responses to the open-ended questions, the responses were consistent in that the positive responses mentioned a single jurisdiction and limited area, while negative responses focused on large geographical scale of the area. In addition to this, negative responses included a related category of comments around the broadness and complexity of the scope of the issues. Regression results in Chapter 5 illustrate that there is a negative relationship between geographical scale of the resource the plan is made for (coded as a dichotomy of multi-national = 1 vs. others = 0) and relationship enhancement between the parties.

*Rank of agency representatives* was not mentioned very frequently but when mentioned the comments related to lack of decision maker involvement and the references to it were strong. According to one respondent

“Absolutely essential to success was the chairman’s requirement that a member of [the] city and county commission attend and participate in the development. They initially wanted to send “staff” to represent the political jurisdictions. In the process I stated I would not chair the group under those conditions, and the commissioners agreed to direct participation, which led to direct participation by the heads of DNR, DEP & GFWFC and Water Mgt District! The key decision-makers were the active participant members in this successful collaboration. If the power structure had not been a part, neither would I, and we [would] not have a plan” [emphasis original].

Absence of decision makers who are able to commit their parties to an agreement from the process is an issue discussed widely in the mediation literature, and studies have demonstrated this absence as a barrier to successful mediation efforts (Berry et al., 2003).

The factors identified in the literature that were not mentioned by a single respondent include equity in decision making, power distribution among the parties, proportional representation, degree of formalization, focus of power, and focus of control. It is difficult to interpret this finding without further information. It might be due to the fact that these
determinants are not seen as necessary for success or they were not present to such a degree as to be noticed specifically.

The examination of the open-ended questions revealed some new variables that were not included in the theoretical framework used for data collection in this study. This is especially true for the determinants of success. The new framework presented in Table 6.4, which combines the variables in Tables 6.2 and 6.3, should be used in subsequent studies to get a fuller view of collaboration success.

In terms of measures of success, the only new variables that have emerged from the analysis of the responses are specific types of goals realization. These are mostly related with producing a plan, approval/adoption of that plan, and acceptance and support of it as well as its quality and implementation. This is an important finding because it indicates how difficult it is to separate the planning/decision making phase of collaborative initiatives from the implementation phase. In most people’s minds a process cannot be successful unless the product of that process is fully implemented.
CHAPTER 7
CONCLUSIONS

The purpose of this dissertation is to answer the research question “What are the determinants of success in interorganizational collaboration in natural resource management?” In order to achieve this, measures and determinants of success have been identified from the theoretical literature and case studies on the topic to develop a framework of variables to be used in the analysis. A survey instrument was developed that included questions on the measures and determinants of success identified during the review of the collaboration literature. A mail survey was conducted of representatives of 3 to 4 organizations that collaborated in the development or revision of a management plan for one of six natural resource management program types. The survey yielded a 60 percent response rate in four waves. A total of 168 survey instruments representing 70 planning initiatives were returned. The quantitative analysis presented in Chapter 5 uses the planning initiatives as the unit of analysis and the arithmetic average of multiple responses for each case to compute case scores. The analysis of the open-ended questions presented in Chapter 6 uses the individual respondent as the unit of analysis.

Success is measured in four different ways in this study: a subjective measure that asked the respondents to rate the success of their effort on a 0 to 6 Likert scale and three composite objective measures. An aggregate index of success is constructed from the objective dependent variables listed in Table 4.1 taking their arithmetic average. Additionally, indices are created for the four major categories in Table 4.1 (realization of goals, satisfaction of collaboration participants, enhanced interorganizational relations, and efficiency) by taking the arithmetic averages of their components. Finally, principal component analysis is used to group the objective dependent variables into components.
I. Summary of Findings

The results support the hypothesis that most of the member factors, process factors and resource factors influence the success of interorganizational collaboration: the relationship and equity between the parties scale, the participant characteristics and agreement scale, and the commitment and support scale. However, due to multicollinearity between the independent variables it is not possible to quantify the individual contributions of each factor to success.

The bivariate correlation coefficients for the subjective and objective measures of success with the individual determinants of success are strikingly similar and indicate strong and significant relationships at the 99 percent confidence level between collaboration success and (1) commitment of the collaboration participants to collaboration; (2) effective leadership for the collaboration; (3) equity in decision making; (4) negotiating in good faith; and (5) relevant professional and technical capabilities (Table 5.15). Existence of trust in the relationships is strongly correlated with the subjective measure of success and moderately correlated with the objective measure, while power distribution among the parties is moderately correlated with the subjective measure and strongly correlated with the objective measure.

An examination of the bivariate correlations of the objective and subjective collaboration success measures with the indexed and scaled determinants of success shows that the member factors index, decision-making structure index, relationships and equity scale, and participant characteristics and agreement scale are significantly correlated with all 11 dependent variables (Table 5.16). The commitment and support scale and the relationship between the parties index are both correlated with 8 dependent variables and the resource factors index is correlated with 5 of the 11 dependent variables.

A comparison of the averaged index independent variables and component-based scale independent variables shows that the results are quite similar. The decision making structure index and member factors index are strongly correlated and the relationship between the parties index is moderately correlated with both measures of success (Table 5.16). The resource factors index, on the other hand, is moderately correlated with the subjective measure of success and weakly correlated with the objective measure. The relationship and equity scale and the participant characteristics and agreement scale are both strongly correlated with the objective and subjective measures of success, while the commitment and support scale is moderately correlated with both measures.
All linear regression models tested in this study are significant at the 95 percent confidence level and have at least one predictor statistically significant at the 90 percent confidence level. Adjusted $R^2$ values range between 0.17 and 0.59. The relationships between the determinants of success and the measures of success are positive as expected.

Among the 9 regression models using component-based scales both the relationship and equity between the parties scale and the participant characteristics and agreement scale are significant in 6 of the 9 models, while the commitment and support scale is significant in two models. Of the individual variables that were entered in the analysis, ripeness of the issue is significant in 9 of the 18 models, and focus of goals and representative status are significant in 2 models. Neither focus of power nor focus of control is significant in any model.

The models show clearly that the relationship between the parties, equity in decision making, participant characteristics (inclusion of all affected stakeholders, proportional representation, and effective leadership), agreement between the parties on ground rules and the scope of the collaboration, and ripeness of the issue are important for collaboration success no matter how success is measured. The results are consistent with other research conducted on similar topics (see Watershed Partnerships Project 2002; Leach et al., 2002). The WPP researchers also find that broad representation, committed participants, trust, and well-defined decision rules increase the likelihood of watershed partnership success.

The responses to the open-ended questions presented in Chapter 6 indicate that most of the participants evaluate the success of a collaborative planning process first and foremost by realization of goals. A total of 164 respondents mentioned 173 specific items that relate to realization of goals. Comparatively, the next largest category, satisfaction of collaboration participants is mentioned only 25 times. There are 11 mentions of durability of the agreement, and 8 mentions of efficiency and enhanced interorganizational relations each.

Realization of a variety of goals, including specific ecological goals, conformance of the solution to available objective standards, goals related with producing a plan or an agreement, and implementation, are used to judge the success of collaborative planning processes by the survey respondents. One of the important findings is that the respondents evaluate the success of collaborative planning using somewhat different criteria than the ones included in the framework developed for this study. Many respondents measure the success of the decision making process by implementation of the decisions and the actual outcomes on the ground. From a participant
point of view a process that is unsuccessful in implementation is not considered successful as a decision making process either.

Two questions were asked to identify the determinants of success. One focused on the factors that contributed to success and one on the factors that hindered success. The most recurring themes in terms of determinants that facilitate success are the relationship between the parties mentioned by 112 and the inclusion and participation of stakeholders mentioned by 92 of the 162 respondents who have answered this question. Professional and technical capacities are mentioned by 58, resource factors by 55, and commitment by 38 respondents.

Agency and representative characteristics and attitudes are the most often mentioned variables as factors hindering success with 44 respondents mentioning each category. Resource factors are mentioned by 41 respondents, organization and centralization of the collaboration by 33 respondents, project factors by 32 respondents, and inclusion and participation of stakeholders by 23 respondents.

Combining responses to both questions and examining determinants of success in general shows that funding is the most important factor mentioned by 41 percent of the respondents, half of whom said availability of funding positively influenced the success of their initiative while the rest blamed lack of funding for not achieving success. This is followed by public participation and input as the second most important determinant with 29 percent of the respondents asserting its influence on success. Commitment to the collaboration process is mentioned by 24 percent of the respondents.

The examination of the open-ended questions revealed some new variables that were not included in the theoretical framework used for data collection in this study. This is especially true for the determinants of success. Four new groups of variables emerged from the survey responses: agency characteristics and attitudes, representative characteristics and attitudes, project attributes, and external factors. Although they are not mentioned by a very large number of respondents (mentioned 56, 55, 42 and 2 times respectively), it is necessary to examine the importance of these variables in more detail in future research. The new framework presented in Table 6.4 should be used in subsequent studies to get a fuller view of collaboration success.

The results will be useful in identifying what types of cases are more suitable for collaboration and what can be done to increase their likelihood of success. This study shows that for interorganizational collaboration efforts to be successful (1) there should be good
relationships and equity between the parties; (2) the participant characteristics should be conducive to successful collaboration and there should be agreement between the parties on ground rules and the scope of the collaboration; (3) there should be commitment to and support for the collaboration by the participants and others; (4) the issue should be ripe for collaboration; (5) participants should be focused on collective goals; and (6) participants should be supervisory staff/professionals and other upper level administrators. If most of these conditions cannot be satisfied collaboration may prove to be a waste of time and effort. In order to achieve an effective collaboration process in cases where some of these factors are lacking, some time should be spent in dealing with these problems.

1. Relationships and Equity between the Parties

The multivariate analyses performed in this study show that the collaboration process is more efficient in terms of time and resources, parties are more satisfied, and more goals are realized when the parties have good relationships in terms of trust, good interpersonal relationships, open lines of communication, negotiating in good faith, and shared ideology and common ground, as well as when there is equity in decision making and in power distribution. As mentioned above, relationships between the parties is the most recurring theme mentioned in the open-ended questions about the determinants that facilitate success. When the relationships between the parties are good and there is equity among parties in the planning/decision making process, participants evaluate the collaborative process as more successful as well. The fact that the same determinants are important for both goal realization and satisfaction of the collaboration participants show that these two outcomes are linked. When their goals are achieved, collaboration participants are satisfied.

The results of this study are consistent with findings from other research on the topic. Developing clear and effective processes for communication and fostering common goals and mutual understanding are identified among the critical elements of integrated environmental management success by Margerum (1999) in a survey of 285 stakeholders of 15 Australian environmental management cases. Among the findings of her survey of the National Marine Sanctuary Advisory Council members, Morin (2001: 337) reports that “many respondents commented that respectful, trusting relationships were essential to the success of the council.” In their survey of 671 participants of 30 collaborative initiatives with the U.S. Forest Service,
Schuett et al. (2001) identified relationships and team building that include trust, respect, and honesty as one of the keys to successful collaboration in natural resource management.

2. Participant Characteristics and Agreement

Model results indicate that when there is proportional representation of parties, inclusion of all affected stakeholders, agreement on ground rules and the scope of the collaboration, and effective leadership for the collaboration more goals are realized, relationships between the parties are enhanced in terms of working relationships, trust and respect, and communication among collaboration participants. Participation of major stakeholders is identified by Margerum (1999) as one of the critical elements of integrated environmental management success. In Gunton et al.’s (2003) study of 15 collaborative land use planning processes in British Columbia the most frequently mentioned strength of the process was inclusion of multiple interests. Effective representation of all relevant interests was ranked among the important factors for effective collaborative planning in the same study. Responses to the open-ended questions emphasize that all major stakeholders as well as the public should be involved in the process for the collaboration to be successful. However, 2.5 percent of the respondents indicated that multistakeholder involvement has hindered success. Ross and Ward (1995) claim that involvement of many different stakeholders who have many different types of interests and degrees of investment creates a number of structural problems or barriers and in such cases it becomes very difficult to ensure that all parties will be represented in the dispute resolution process or their concerns will be taken into account.

In addition, more capacity building through acquisition of knowledge that results in new decision making processes, information or expertise, as well as new resources is observed when participant characteristics are conducive to successful collaboration and there is agreement between the participants on ground rules and the scope of the collaboration.

3. Commitment and Support

The results of the multivariate analysis show that when there is political support, resource commitment and funding, commitment of collaboration participants, and sufficient stakeholder incentives parties perceive that more goals are realized and evaluate the process as more successful. Resource factors, political support and funding, and commitment to the collaboration are among the determinants of success that received frequent mentions in the open-ended
questions as well. Overall, funding was the most frequently mentioned determinant by a total of 41 percent of the respondents as facilitating success when it is present or hindering when absent.

This is consistent with Leach and Pelkey’s (2001) findings that adequate funding is viewed as important to watershed partnership success in 62 percent of the 37 research studies they examined. Lack of funding was the most often cited inhibitor to progress in Margerum’s (1999) survey of Australian environmental management cases, while similar results were obtained from U.S. case studies as well (Margerum, 2002). Commitment of the participants was among the variables ranked as important by stakeholders for effective collaborative planning in Gunton et al.’s (2003) study of collaborative land use plans in British Columbia.

4. Ripeness of the Issue

Another important factor is the timing of the collaborative effort and the ripeness of the issue. If there is disagreement over the importance of the issue or the necessity to take action, there will not be sufficient incentives to participate or commitment to the effort. When the issue is ripe for collaboration (i.e. there is agreement among the parties about the importance and urgency of the matter) more goals are realized, parties are more satisfied, and as a result they view the process as more successful. This coincides with Gray’s (1989) assessment that issues that have not yet gained widespread public attention may be premature for collaboration.

5. Focus of Goals

Statistical analysis indicates that focusing on the collaborative goals rather than the individual goals of the participating organizations enhances the relationships between the parties. In the open-ended questions 17 percent of the respondents mentioned the focus of some agencies on their own goals as an obstacle to collaboration success.

6. Representative Status

The results of this study show that representation by supervisory staff/professionals and other upper level administrators during the collaborative process increases the likelihood of realization of goals. Participation by high-level staff who is able to make decisions on behalf of their agencies was mentioned as a determinant of success in response to open-ended questions as well.
II. Significance of the Findings for Theory

This study provides evidence that most of the determinants of success identified from the theoretical and empirical literature on collaboration (see Table 3.2) are significant for collaboration success. Success is measured in a variety of ways in this study and the results show that relationships between the parties and equity, participant characteristics and agreement, and ripeness of the issue are crucial to success no matter how it is measured. Commitment and support are found to be significant only for realization of goals and parties’ subjective perceptions of collaboration success, while representative status is a significant predictor of goal realization, and focus of goals is important to relationship enhancement.

Focus of power and focus of control are not significant in any of the linear regression models tested. These variables measure two dimensions of Mulford and Rogers’s (1982) typology for the organization and centralization of collaborations. Another variable measuring one of the six dimensions of Mulford and Rogers’s typology, formal rules, was dropped from the regression analysis because it is not significantly related with any of dependent variables. The typology as a whole could not be utilized in this analysis because the collaborations studied here did not consistently fit the individual categories of the typology on all dimensions, but rather showed characteristics of different categories for different dimensions. As a result instead of using the typology as a determinant, the dimensions were tested separately.

Durability of the agreement, availability of mediators, and professional and technical capacities could not be tested due to possible measurement errors. The possibility of measurement error for the availability of mediators was indicated by the unexpectedly low scores on this variable as a determinant of success. Further examination showed that the term mediator was not sufficiently explained and as a result most respondents did not understand the question.¹

Four new groups of variables emerged from responses to the open-ended survey questions: (1) agency characteristics and attitudes, (2) representative characteristics and attitudes, (3) project attributes, and (4) external factors. The variables that could not be tested due to measurement error and the variables that have emerged from the open-ended questions should be examined in more detail in future research.

¹ See Chapter 5, Section IV. 1. for details.
A major issue that remains unresolved here involves the relationships between the variables examined. Principal Component Analysis gave some insight into the relationships among the dependent variables and the independent variables separately, however more effort is required to properly differentiate some variables as dependent versus independent variables in studies of interorganizational collaboration. What some analysts and participants consider as a determinant of success is considered a measure of success by others. This confusion is prevalent both in theory as well as on the ground. For example Suchman (1967) suggests measuring success through effort, i.e. input such as time and money dedicated to the project, and process criteria that examine how and why a program works or not.\(^2\) These are considered as determinants of success rather than measures of success by Gray (1989) as well as in this study. Some would argue that trust and commitment are necessary for the success of a collaboration and others would say these are the products of a successful collaboration. In this research some survey participants indicated stakeholder involvement as a determinant of success, while others viewed it as evidence of the success of their collaboration. The complexity of the relationships between these variables with each other suggests the use of a statistical technique such as Path Analysis to explore these relationships further.

Major contributions of this research to the literature include: (1) its focus on the planning/decision-making phase of collaboration while most other research either examines collaboration as a whole or looks only at the implementation phase; (2) its focus on interorganizational collaboration rather than stakeholder collaboration (public participation); (3) its use of a consistent framework of variables across a large number of similar cases rather than reliance on case studies conducted by different researchers for a variety of purposes; and (4) its use of multivariate analysis to empirically substantiate the linkages between the determinants of success and collaboration success.\(^3\)

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\(^2\) See Chapter 2, Section II. 1. for details.

\(^3\) To date only two other studies using multivariate analysis have been identified on the topic. The WPP study group at the University of California, Davis, published some preliminary multivariate analysis results (Watershed Partnerships Projects, 2002). Gunton et al. (2003) mention ongoing research the results of which are yet to be published.
III. Implications of the Findings for Planning/Policy Practice

Exploring what makes collaborations work is not only important for planning theory, but also has significant implications for planning practice and policy making. In addition, the implications of the results are not limited only to collaborations for natural resource management. Findings from this study should have value to better designing collaborative planning and decision making in many interorganizational settings including regional planning, metropolitan area planning, economic development, and growth management.

The results of this study provide some insights on when collaboration should be attempted as well as what can be done to enhance the likelihood of collaboration success. These insights suggest that collaborations are more likely to succeed when the parties already have good working relationship with each other, when there is equity in the decision making process, when participant characteristics are conducive to success (i.e. all affected stakeholders are included, there is proportional representation, and there is effective leadership for the collaboration), when there is agreement between the parties on ground rules and the scope of the collaboration, and when the issue is ripe for collaboration.

This does not mean collaboration should not be attempted when some of these conditions are absent. However, an examination of the conditions can help us focus on the determinants we can manipulate to increase the likelihood of success. For example improving communication between the parties through the use of facilitators or other means may increase trust and good faith and improve relationships. At a stage in which key decisions are made, who is at the table, how much they agree on the decision rules and scope, and how well they get along is of utmost importance. Better process design in terms of whom to involve, how they are represented, and how decisions are made can make a difference in whether our efforts will be successful. Some of these might be achieved through better leadership as well.

The collaborative initiatives examined in this research are natural resource management plans made in accordance with specific statutes that require collaboration among government agencies and sometimes other interest groups. This may raise doubts over the generalization of the results to more voluntary collaborations. During the definition of the sample frame, variations in the application of these statutes were observed, and only cases that were truly collaborative were included in the study. In other words, the cases studied represent voluntary
collaborations which in some cases went beyond the requirements of the statutes. As a result, I expect the insights gained here are likely to apply for truly discretionary collaborations as well.

IV. Future Research

Although our knowledge about how collaboration works and what makes it successful has expanded rapidly in the last decade as a result of increased interest and research in the area, there are still many unanswered questions. Due to the complexity of the issue this research is limited to the planning and decision making phases of collaboration. A logical next step is to expand it to the implementation phase and examine the determinants of success in collaborative plan/program implementation. A comparison of collaboration for natural resource management in the United States with international initiatives will also be useful. To make it more comparable, a particular type of natural resource management such as water resources management could be focused on. In depth, comparative case studies focusing on the variables tested here as well as new variables that emerged from the analysis of open-ended questions may help to better understand the relationships between these variables and success.

This research focuses on natural resource management. Although I suspect the results would hold true for other areas of planning as well, an extension of this type of research into regional planning, metropolitan area planning, economic development, and growth management would be instrumental in testing this claim. Furthermore, a comparison of successful initiatives with failures will shed more light on the determinants. The cases examined here have varying degrees of success, which enabled the kind of quantitative analyses conducted. However, they were selected as successful initiatives bringing a selection bias. An additional concern is about the generalization of the results from mandatory to voluntary collaborations. A similar study focusing solely on voluntary collaborations or a comparative research design that includes both successful and unsuccessful collaboration attempts should clarify that question.

In addition, this dissertation raises some issues and questions about the natural resource management programs examined here. They are said to be collaborative, however initial contact with program coordinators and convening agency representatives indicates that these programs are not implemented uniformly everywhere. There seem to be different degrees of collaboration in the implementation of a program in different states, or sometimes even within a single state.
This is observed in the Florida SWIM plans as well as Habitat Conservation Plans.\textsuperscript{4} The issue of differing levels of collaboration in the six natural research management programs studied here and their inconsistent application suggests further exploration into when and under what conditions agencies choose the collaborative approach.

Literature review and pretest of the survey revealed that the categories of cases selected for the survey differ in other characteristics. The Remedial Action Plan process is more complicated and involves more parties. On the other hand, in some Habitat Conservation Plans the only groups involved are the landowner, the federal FWS regional office, and the state FWS office. However, when type of case was used as a control variable no significant difference was observed between different case groups. Still, the level of complexity of the collaboration is an issue that should be examined further.

The issues that came up during the sampling show how complicated and varied collaboration can be. This research attempts to address some of these issues and provides some new insights into what makes collaborations work. But many questions remain. The measures of success and the framework of determinants of success developed here will be useful in answering some of those by providing researchers with a tool ready to be applied.

\textsuperscript{4} See Chapter IV, Section III.2. for details.
APPENDIX A

FLORIDA PLANNING AND DEVELOPMENT LABORATORY
INTERORGANIZATIONAL COLLABORATION SURVEY

This survey aims to identify the factors that lead to the success of collaborative natural resource management initiatives. For the purposes of this survey collaboration is defined as a process through which parties who see different aspects of a problem constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible. It includes cooperation and coordination. Furthermore, this survey is focused on only the planning/decision-making phases of collaboration. Please do not reply to the questions in terms of the plan/program implementation phase of collaboration.

BACKGROUND

The following questions are intended to get some background information on the case circumstances and the collaboration.

1. Please record the number of organizations and non-affiliated individuals participating in this collaboration in each category.
   - Federal Government Agency
   - State Government Agency
   - Local or Regional Government Agency
   - Private Corporation
   - National Non-Profit Organization
   - State Non-Profit Organization
   - Local Non-Profit Organization
   - Individuals Not Representing an Organization
   - University Staff or Faculty
   - Other - Please Specify: ________________________

2. Please indicate the extent to which the participating parties to this collaboration have a prior history of collaboration with each other by circling the appropriate choice.
   a. None of the parties have collaborated with each other before.
   b. Some of the parties have collaborated with each other before.
   c. Most of the parties have collaborated with each other before.
   d. All of the parties have collaborated with each other before.
3. Please circle one of the following that best characterizes your role in this collaboration process:
   a. AN INTERESTED PARTY BUT NOT THE CONVENER RESPONSIBLE FOR BRINGING THE PARTIES TOGETHER
   b. INTERESTED CONVENER - HAD A STAKE IN THE OUTCOME
   c. NEUTRAL CONVENER - HAD NO STAKE IN THE OUTCOME

4. Please circle the category that best describes the geographic scale of the natural resource that is the focus of this collaborative effort:
   a. MULTI-NATIONAL
   b. MULTI-STATE
   c. SINGLE-STATE (MULTI-JURISDICTION)
      LOCAL (WITHIN A SINGLE COUNTY, CITY, TOWN, OR VILLAGE)

**Outcome/ Performance Characterization**

The following questions deal with outcomes of the collaboration and evaluation of the collaboration process.

5. Please circle the category that best describes the objectives of this collaborative effort.
   a. INITIAL PREPARATION OF A PLAN
   b. REVISION/UPDATE OF AN EXISTING PLAN

6. Please circle the category that best describes the status of this collaborative effort.
   a. THE PLAN HAS BEEN COMPLETED AND APPROVED (GO TO QUESTION 7)
   b. THE PLAN HAS BEEN COMPLETED AND IS AWAITING APPROVAL (SKIP TO QUESTION 9)
      THE PLAN IS IN PREPARATION (SKIP TO QUESTION 9)
7. Please indicate how long it has been since completion and approval of the plan described in Question 5 by circling the category that corresponds to the appropriate time interval.
   a. LESS THAN 3 MONTHS
   b. 3 TO 6 MONTHS
   c. 7 TO 12 MONTHS
   d. 13 MONTHS TO 18 MONTHS
   e. 19 MONTHS TO 2 YEARS
   f. 2 TO 3 YEARS
   g. MORE THAN 3 YEARS

8. Please indicate how long the plan described in Question 5 has served as an agreed upon guide for action and decision making by circling the category that corresponds to the appropriate time interval.
   a. LESS THAN 3 MONTHS
   b. 3 TO 6 MONTHS
   c. 7 TO 12 MONTHS
   d. 13 MONTHS TO 18 MONTHS
   e. 19 MONTHS TO 2 YEARS
   f. 2 TO 3 YEARS
   g. MORE THAN 3 YEARS

9. Please indicate the extent to which your party achieved its goals in the collaboration by circling the appropriate number on the scale (0 = None of our goals have been achieved; 6 = All of our goals have been achieved)

   
   \[
   \begin{array}{cccccc}
   \text{NONE} & 0 & 1 & 2 & 3 & 4 & 5 & 6 \\
   \text{ALL} & & & & & & & \\
   \end{array}
   \]

   Achievement of goals

\[\text{If you participated as an unaffiliated individual “your party” is you. If you represented an organization in the collaboration, “your party” is that organization.}\]
10. Please indicate the extent to which your party realized the following outcomes as a result of the collaboration by circling the appropriate number on the scale (0 =None acquired; 6 =Much acquired)

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NONE ACQUIRED</th>
<th>MUCH ACQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquired new resources (technology, labor, funds, or equipment)</td>
<td></td>
</tr>
<tr>
<td>Acquired knowledge, information, or expertise</td>
<td></td>
</tr>
<tr>
<td>Acquired knowledge that resulted in new decision-making structures and/or processes within your organization</td>
<td></td>
</tr>
</tbody>
</table>

11. Please indicate the extent to which the collaboration has resolved the real issues of concern to all parties by circling the appropriate number on the scale (0 =Resolved none of the real issues of concern; 6 =Resolved all of the real issues of concern)

<table>
<thead>
<tr>
<th></th>
<th>0</th>
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<th>3</th>
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<th>5</th>
<th>6</th>
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</thead>
<tbody>
<tr>
<td>0</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NONE ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issues resolved by the collaboration</td>
</tr>
</tbody>
</table>

12. Please indicate the extent to which you believe the agreed upon solutions are consistent with scientifically accepted understanding of the problem by circling the appropriate number on the scale (0 =Do not conform at all; 6 =Conform completely)

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DO NOT CONFORM AT ALL CONFORM COMPLETELY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conformance of solutions to scientifically accepted understanding</td>
</tr>
</tbody>
</table>

13. Please indicate how successful you consider this collaboration effort by circling the appropriate number on the scale (0 =Not successful at all; 6 =Very successful)

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOT SUCCESSFUL VERY SUCCESSFUL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success of the collaboration</td>
</tr>
</tbody>
</table>
14. Please explain what characteristics you use to judge the success of this collaborative planning process.

15. Please describe the factors that you think positively or negatively influenced the success of this collaboration. You can list as many as you like.

   a. Factors that contributed to success

   b. Factors that hindered success
16. Please indicate how the collaboration process has affected the following interactions among the majority of the collaborating parties by circling the appropriate number on the scale (-3 = Deteriorated substantially; 0 = No effect; 3 = Improved substantially)

<table>
<thead>
<tr>
<th></th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DETERIORATED SUBSTANTIALLY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Communication</td>
</tr>
<tr>
<td>NO EFFECT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Working relationships</td>
</tr>
<tr>
<td>IMPROVED SUBSTANTIALLY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Trust and respect</td>
</tr>
</tbody>
</table>

17. Please indicate your party’s overall satisfaction with the collaboration process by circling the appropriate number on the scale (-3 = Very dissatisfied; 0 = Neither satisfied nor dissatisfied; 3 = Very satisfied)

<table>
<thead>
<tr>
<th></th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>VERY DISSATISFIED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Your party’s satisfaction</td>
</tr>
<tr>
<td>NEITHER SATISFIED NOR DISSATISFIED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VERY SATISFIED</td>
<td></td>
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</tr>
</tbody>
</table>

18. Please indicate the extent of your party’s impact on the substance of the plan by circling the appropriate number on the scale (0 = No impact at all; 6 = Great impact)

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NO IMPACT AT ALL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Your party’s impact on the plan</td>
</tr>
<tr>
<td>GREAT IMPACT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
19. Please indicate the extent to which the plan has or will produce joint gains for the parties by circling the appropriate number on the scale (0 =No party gains; 6 =All the parties gain)

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO PARTY</td>
<td>ALL PARTIES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Joint gains produced by the plan

20. Please indicate the extent to which the parties have shown a willingness to abide by and implement the plan developed by this collaboration by circling the appropriate number on the scale (0 =Not willing at all; 6 =Very willing)

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT WILLING AT ALL</td>
<td>VERY WILYING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Willingness of the participants to abide by and implement the plan

21. Please indicate the extent to which your party views the outcomes of the collaboration as equitable by circling the appropriate number on the scale (0 =Not equitable at all; 6 =Very equitable)

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT EQUITABLE</td>
<td>VERY EQUITABLE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Equitability of the outcomes

22. Please indicate how efficient the decision making process has been in terms of the financial resources and time required of the parties by circling the appropriate number on the scale (0 =Very inefficient; 6 =Very efficient)

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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</tr>
</thead>
<tbody>
<tr>
<td>VERY INEFFICIENT</td>
<td>VERY EFFICIENT</td>
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<tr>
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</table>

Financial resource efficiency

<table>
<thead>
<tr>
<th>0</th>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
</table>
| Time efficiency
**Process Characterization**

The following section deals with different attributes of the collaboration process.

23. Please indicate the extent to which each of the following statements accurately describes this collaboration process by circling the appropriate number on the scale (0 = Strongly disagree; 6 = Strongly agree)

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>All affected stakeholders were included.</td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>Sufficient incentives existed for the stakeholders to participate.</td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>Parties to the collaboration process were committed to the collaboration.</td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>There was effective leadership of the collaboration process.</td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>The issues addressed by the collaboration process were sufficiently ripe to be addressed at the time.</td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>The decision making process was viewed as equitable by all the parties.</td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>All of the parties had equal power to affect the collaboration process and its outcomes.</td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>There was mutual agreement on ground rules and decision-making processes.</td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>There was proportional representation among parties.</td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>Mediators were available during crisis points in decision making.</td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>There was agreement on the scope of the collaboration.</td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>Shared ideology and common ground existed among parties.</td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>Parties negotiated in good faith.</td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>There was trust among the parties.</td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>Parties maintained good interpersonal relationships with each other.</td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>Lines of communication were open among the parties.</td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6</td>
<td>Parties had the necessary professional and technical capabilities.</td>
<td></td>
</tr>
</tbody>
</table>
24. Please indicate the extent to which the available political support and funding were sufficient for this collaborative planning process to succeed by circling the appropriate number on the scale (0 = Insufficient; 6 = Sufficient)

<table>
<thead>
<tr>
<th>0</th>
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<tbody>
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<td>SUFFICIENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
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<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

25. Please indicate the extent to which the collaboration process was governed by formal rules by circling the appropriate number on the scale (0 = No formal rules; 6 = Many formal rules)

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>MANY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

26. Please indicate the extent to which the parties committed resources to the collaboration (money, labor, equipment, or materials) by circling the appropriate number on the scale (0 = None of the parties committed resources; 6 = Most parties committed substantial resources)

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>NONE</td>
<td>SUBSTANTIAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

27. Please circle the statement that best describes the positions of the participants within their respective organizations.
   a. The participants were predominantly lower ranking staff members
   b. The participants were predominantly supervisory staff or professionals
   c. The participants were predominantly upper level administrators
   d. The participants were predominantly chief executive officers
   e. The participants included a mix of position levels
   f. The participants were predominantly individuals who did not represent the interests of an organization
28. Please circle the statement that best describes the focus of power within the collaborative planning process.
   a. POWER WAS DECENTRALIZED, INDIVIDUAL ORGANIZATIONS WERE LARGELY INDEPENDENT OF EACH OTHER AND THE COLLABORATIVE PROCESS POSED FEW THREATS TO THEIR AUTONOMY
   b. POWER WAS DECENTRALIZED, BUT INDIVIDUAL ORGANIZATIONS HAD TO DEPEND ON EACH OTHER TO ACHIEVE THEIR GOALS
   c. A NEW DECISION MAKING ENTITY WAS CREATED THROUGH COLLABORATION WHICH HAD THE POWER TO MAKE DECISIONS THAT BOUND PARTICIPATING ORGANIZATIONS

29. Please circle the statement that best describes the focus of control within the collaborative planning process.
   a. NONE OF THE DECISIONS MADE DURING THE COLLABORATION PROCESS HAD TO BE RATIFIED BY THE PARTICIPANTS’ ORGANIZATIONS
   b. SOME OR ALL OF THE DECISIONS MADE DURING THE COLLABORATION PROCESS HAD TO BE RATIFIED BY THE PARTICIPANTS’ ORGANIZATIONS

30. Please circle the statement that best describes the goals upon which the parties were focused during the collaborative planning process.
   a. PARTIES FOCUSED ONLY ON GOALS OF THEIR INDIVIDUAL ORGANIZATIONS.
   b. PARTIES FOCUSED BOTH ON COLLECTIVE GOALS AND ON GOALS OF THEIR INDIVIDUAL ORGANIZATIONS.
   c. PARTIES FOCUSED ALMOST EXCLUSIVELY ON COLLECTIVE GOALS.
If you would like to provide additional opinions or information, please use this space.

Thank you very much for taking time from your busy schedule to reply to our survey. Your participation is extremely important, and your responses will remain anonymous. Please fold your completed survey at the dashed line, seal, and mail within one week. Postage is prepaid.

If you would like to see the results when they become available please check the box below.

☐ Yes, I would like to see the results.
## APPENDIX B

### CASES THAT WERE SURVEYED

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PT01†</td>
<td>Clinton River</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>Ashtabula River</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102</td>
<td>Black River</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103</td>
<td>Grand Calumet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>104*</td>
<td>Kalamazoo River</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105</td>
<td>Manistique River</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>107</td>
<td>River Raisin</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>108</td>
<td>Rouge River</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>111</td>
<td>Eighteenmile Creek</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>112</td>
<td>Oswego River/Harbor</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>115</td>
<td>St. Clair River</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>Stellwagen Bank</td>
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### Surface Water Improvement and Management Plans

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<td>Choctawhatchee Bay</td>
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### National Estuarine Research Reserves Management Plans

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<td>Tijuana River</td>
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<td>619*</td>
<td>Weeks Bay</td>
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* Cases excluded from analysis due to missing values
† Cases surveyed for the pretest
** Cases excluded from analysis due to outlier effects.
APPENDIX C

SURVEY RESPONSES TO OPEN-ENDED QUESTIONS

The following three lists present the responses to the three open-ended questions in the survey about the measures and determinants of success. The responses are grouped into thematic categories and presented as such. The boldfaced themes are the ones identified from the collaboration literature and included in the frameworks used in the quantitative analysis of this study (Tables 4.1 and 4.2). The others are themes that emerged from analysis of the open-ended questions that should be used in future research. The number of times each factor was mentioned is indicated in parentheses when it was mentioned more than once.

Measures of Success

14. Please explain what characteristics you use to judge the success of this collaborative planning process.

- **Realization of Goals**
  - Realization of Goals: General
    - # of collaborative projects 10202
    - That will be determined by the goals achieved. 10802
    - Did the project results meet goals & objectives? 12704
    - Attainment of goals, objectives 20203
    - Results 20401
    - Establishment of the sanctuary with dedicated fiscal and staff support from federal and state agencies. 30604
    - Is there closure? 40102
    - The plan is highly likely to succeed in its objectives. 40801
    - Whether: The city of Tacoma was able to acquire the Incidental Take Permits (ITP) that it sought, 40802
    - Permits were issued 41001
    - We achieved most of our goals, which were a permit to take ESA-protected species, a comprehensive open space plan to eliminate project-by-project review 41004
    - Goals achieved 51204
    - Your success has to be linked to the outcome of the process 60104
− Program success 60601
− The establishment of a research reserve, development of successful research & monitoring 61001
− Accomplishment of goals & objectives in the plan 61901
− Meeting realistic expectations, changing unrealistic expectations PT406

⇒ Realization of Ecological Goals
− The success of the project is only determined by the actual dredging 10103
− The restoration of the Kalamazoo River and delisting of said river. 10404
− The environmental degradation that was the focus of the group has been remedied. 10501
− Achievement of clean up goals – removal/control of contaminants in sediments. 10502
− High levels of PCB remediated 10701
− Public health benefits (restoration of impaired beneficial uses) 10704
− Water quality of the stream 11101
− The success of the collaboration is measured by how well the Remedial Action Plan succeeded in identifying existing conditions in the creek, problems and defined a realistic path to deal with the problems. 11104
− Addressing 14 use impairment indicators in detail. Remedial actions done 11201
− Clean up of the river 11602
− The restoration of the chemical, physical and biological integrity of the Niagara River Ecosystem in a manner that reflects the community’s concern for the remediation, preservation and protection of the river 11702
− Implementation has resulted in published scientific information that documents significant reductions in measurable pollutant levels in the Niagara River. Brownfields have been or are in process of becoming … park/open space on the Niagara River. 11704
− Will it clean the pollution from the past to the lake, will it help restore & preserve the lake, will it help preserve the lake for the future. 12103
− Working towards delisting of Hamilton Harbour as an Area of Concern with the Great Lakes 12903
− Quantifiable successes, such as increased number of shellfish growing areas opened, etc. 20101
− Non-degradation of estuaries 20201
− Objective was to bring various agencies and individuals together to combine resources and achieve environmental objectives. Outcome will result in better and cleaner community. 20402
− Did end result (the revised management plan) help directly abate priority threats to humpback whales in Sanctuary waters; and 30303
− Whether: The HCP provides habitat and species protection. 40802
− Resources protected 41001
− Water quality improvement 50301
− Results in restoring waterbodies that have been impaired. The plan lays the framework for work to be done 50503
− Projects prepared within the SWIM plan that will have had positive impacts on Sarasota Bay. 51501
− Acreage of protected land & habitat enhancement. 60101
− Degree to which the resources are protected and managed 61202
− The proper mgmt. & protection of the resources covered by the plan developed as a result of the process. PT303
− Achieving conservation and management goals PT406
− Net conservation benefit to listed species was achieved. PT409
⇒ Problem Identification
- PCBs were identified as a major concern – the HOT SPOT 10701
- The problem sources identification process found additional areas which needed remediation. 12104
- Were problems clearly identified? 12204
- The plan consisted of: Problems identified 12701
- Identify various “problems” 51303

⇒ Production of an Agreement or a Plan
- A highly contentious situation at the start evolved to a cooperative agreement. 10501
- Stage 2 RAP document has been produced. 11603
- Completed the planning stage plan document called “Stage II” report in a timely manner. 12303
- Plan preparation 12904
- The agreements 20203
- Development of “ready to implement” plan 20603
- Prioritizing activities/projects/goals  20604
- Action plan to remediate an ecologically dysfunctional system 21004
- Successfully completing CCMP. 21204
- Completion of a plan that is acceptable to all parties. 50501
- Completion tasks leading to Final report 50903
- The report has been produced. 51303
- This collaboration between and among groups has allowed us to generate 4 general plans over this period of time. 61802
- Process produces plan PT101

⇒ Approval or Adoption of a Plan
- We have completed a Comprehensive Management Plan & EIS that is being approved by USACE HQ as we speak. 10104
- Each of 4 parties internally has approved document. 11603
- Progress of plan update through various layers of approval (just starting, but at least has made it in the door) 12002
- [Plan] Approval 12904
- New plan was approved and adopted 30304
- Additionally, the plan approval facilitated the participation and future management activities of the Northwest Fl. Water Mgt. District. 50601
- Approval of the plan in a timely manner 50703
- * All that participated signed off on plan. 21204

⇒ Acceptance or Support of the Plan
- Acceptance of outcome by previously skeptical parties. 12002
- The plan was accepted by all stakeholders, the community at large and the municipalities. 12303
- Consensus on preparing report. 12401
- Consensus on solutions 20201
- Degree of consensus 20601
- Public support of outcomes 20603
- Consensus among diverse groups – universities & fed. Agencies ⇒ citizen groups from poor communities 21004
- Community to support the final document 21202
Development of a management plan that has support of community and good likelihood of being implemented. 21203

Support voiced for certain issues/positions 30502

We have a plan that is widely accepted, 40504

A planning product that is a consensus within a regulatory framework 40701

Acceptance from outside sci. community 40703

We agreed on joint efforts, as well as complementary separate efforts, that led (or will lead) to a successful mitigation and restoration plan. 40803

Agreement on goals and objectives in the basin in terms of protection, restoration & preservation of ecology. 50101

Establishment of a consensus regarding framework and strategies for preservation and restoration efforts 50303

Good acceptance by community. 50701

Positive public comments during development 50703

Positive feedback from site users and advisory committee members, acceptance of the plan by federal and state agencies 61201

The Management authority is able to come to a working consensus that meets the Vision Statement of the management plan in the best interests of the resource. 61802

Plan is accepted by groups not involved in planning PT101

⇒ Product Quality

Is the plan useful? 11604

Whether the recommendations are usable 11901

Did the process celebrate successes as well as identify problems, did the plan result in establishing clear restoration targets 12001

Specific recommendations [in the plan] 12904

The quality of decisions 20203

Results in plan with clear assignments & timelines (expectations are clear) 20901

Did the end result help managers to focus resources on priority resource management problems 30303

Ensuring all major issues are addressed 30503

Quality & breadth of final report 50502

By number of goals of local conservation organization that were incorporated in SWIM plan. 50603

Plan clarity – people took their own view of what was intended in the plan (which often is not in writing) 61001

* The SWIM plan was well written 50803

⇒ Implementation

The ability to implement portions of Remedial Action Plan. 10301

That will be determined by the implementation actions 10802

Whether the recommendations get used. 11901

Collaborative projects have been implemented 11902

Did the completed plan initiate remedial actions and/or discussion about how to address identified problems 12001

The actual cleanup implementation has begun 12104

[The plan] provided the base for successfully implementing remedial actions. 12303

We have implemented many options while plan was developed. Much of implementation complete. 12701

Was the project completed? 12704
- Completed projects consistent with the goals, local implementation 13001
- The plan is one that can be implemented. 20401
- Results in the field (projects implemented per the plan) 20601
- [Plan] is being implemented 40504
- Completion of projects listed in the plan 50101
- How well the plan has been implemented 50402
- Evidence of plan implementation 50502
- We measure success as implementation of planned activities 50503
- Document is in third iteration with several projects complete or underway. 51201
- Process resulted in funding recommendations and project implementation 51701
- The fact that many of the “projects” described in the plan have been implemented or have been approved to be implemented is testimony for the success of the plan. 60104
- The completion of tasks elaborated in the approved Management Plan. 61103
- Plan is implemented PT101

⇒ Implementation Safeguards
- Was there a commitment to ongoing monitoring in order to measure success? 12204
- The plan consisted of: Action Plan, Implementation/monitoring 12701
- We have defined a system that provides for a level of accountability not usually achieved. We have an advisory committee comprised of stakeholder representatives that is engaged in development and implementation of monitoring an adaptive management. 40504
- There are provisions to monitor & evaluate success and mechanisms for adjustment if any part does not succeed. 40801
- Follow-up by lead agency on collaborators regarding results over time 50502
- Clearer definition of performance measures 50701

⇒ Achieving Each Party’s Goals
- Individual members goals being met 20604
- Objectives of “parties” (USFWS, NMFS, Plum Creek) achieved and new cooperative approach emerged. 40101
- The extent to which each participants goals/needs were considered and incorporated/addressed. 61902
- [The company] achieved desired regulatory assurances. Net conservation benefit to listed species was achieved. PT409

⇒ Achieving Own Party’s Goals
- Did my party obtain most of what it needed. 40601
- Whether my agencies issues are addressed. 51302
- Success is achieved if the plan factors in the concerns of our jurisdiction provides leeway & consideration for governments that have already been pro-active in reducing polluted loading 51304
- Meeting overall goals of our organization 61104

⇒ Capacity-Building of Organizations
- Acquisition of New Resources (Technology, Labor, Funds, or Equipment)
- Acquired Knowledge, Information, or Expertise
  - Increase in level of awareness and understanding among stakeholders regarding the process and the sanctuary. 30101
  - Resource (fish & wildlife) needs well understood 40402
- Acquired Knowledge That Resulted in New Decision-Making Structures and/or Processes
  - The learning 20203
  - Systemic changes in local govt & to some extent in state agencies 20403
⇒ Whether the Outcome Resolves the Real Issues in Dispute
  - # issues identified and resolved 10202
  - Controversy basically resolved. 30603
  - Resolution of issues addressed in the plan 50101
  - Whether it lays the groundwork to fix the problem. 50803
  - Plan objectives encompass all concerns & problems. 51202
  - Priority issues of concern raised by stakeholders have been resolved through increased understanding & awareness of program goals and objectives and by establishing constructive partnerships that provide mutual benefits. 61501
  * Issues were addressed. 51302

⇒ Conformance of the Solution to Available Objective Standards
  - Based on the major concern in our AOC (PCBs) the agencies involved in our area worked closely together, identified the options, and for the most part arrived at the most environmentally sound and practical solution. 10703
  - Ecosystem approach 10704
  - A wholistic, integrated “sustainability” approach 12302
  - Basing plans on scientific facts from recognized experts 20404
  - Adopts to new scientific evidence and thinking, incorporates and articulates consensus positions 20901
  - Conformity with major goals like the National Estuary Program, inclusion of conditions which further environmental goals, such as compliance with and progress toward Clean Water Act goals, pollution reduction, and habitat protection. 20904
  - Technical validity of desired outcome. 21002
  - Using good science to inform decisions 21004
  - The level of scientific rigor to base conclusions. 40401
  - Success is based on what the norm is when dealing with cities, towns, counties, and individual landowners in dealing with ESA compliance 40602
  - Whether: The restrictions placed on the City’s water utility by the ITPs were not overly burdensome, 40802
  - The effort also satisfied the requirements of the Endangered Species Act. 40803
  - Best science based 40904
  - Completion of a plan that meets the criteria for formal pursuant to statutory guidance 50501
  - Plan goals are realistic & can be expected to be achieved. Plan projects are practical and address objectives. 51202
  - Incorporation of [scientific] information into the SWIM Plan. Utilization of [scientific] information to create new projects and/or enhance existing projects that will benefit the resource (in this case, Lake Thonotasassa). 51301
  - Increase in public use opportunities, increase in public access, expanded recreational opportunities, emphasis on sustainable development, increase in compatible economic development 60101
  - NERR managers understand & incorporates into plan fact that state owns & manages most the land & water in the NERR  61002
  - Was the result biologically sound? PT416
  * Included public health concerns 10404
  * Adaptive management built into the plan 40901

• Durability of the Agreement
  - The fact that [the project] is alive & well does speak for itself 10103
  - Participants have continued to participate over a 12 yr process. 10204
  - The resultant work product is still the guiding document (5 years later) 10302

194
- Attendance at meetings over a period of 14 years 11503
- Citizen Advisory group continues to participate/support effort. 11603
- Continued participation by some members 20401
- In an ongoing sense we are all still collaborating which is a success in and of itself. 30104
- Degree of back sliding on issues previously resolved (lack thereof) 40503
- Longevity 60601
- We have done this for the past 20 years. 61802
- Continued collaboration for ongoing efforts 61901

- **Enhanced Interorganizational Relations**
  - **Improved Communication Among Collaboration Participants**
    - Increased communication and coordination. 50701
  - **Improved Working Relationships Among Collaboration Participants**
    - Change in mutual attitudes between sectors 11503
    - Strengthened working relationships 40301
    - A series of new working relationships with traditional opponents 41004
    - Fundamentally how well the planning process led to effective relationships with partners relative to implementation 60104
  - **Building Trust and Respect among Collaboration Participants**
    - Mistrust replaced with guarded acceptance. 30603
    - Degree of trust developed among parties with competing ideas. 40201
    - New sense of trust 40301

- **Satisfaction of Collaboration Participants**
  - **Overall Satisfaction of the Participants**
    - All stakeholders were satisfied with the planning document and the process used to develop it. 10302
    - The RAP revision process is judged by satisfaction with the final document. 10802
    - Were all parties reasonably satisfied with the results? 12704
    - Satisfied with signed agreements. 40303
    - How the parties “felt” at the end. 40401
    - Was there satisfaction gained by all parties 40601
    - Amount of dissatisfaction 40701
    - Mutual satisfaction/consensus among diverse interests 40703
    - Satisfaction of parties 51204
    - Satisfaction of individual stakeholders in the process & the outcome. PT303
  - **Do the Parties Feel they Affected the Substance of the Plan?**
    - Respect and responsiveness to stakeholder concerns 30101
    - Were the views of all interest groups accounted for in both the planning process and end product; 30303
    - Lead agency truly listens to input 40904
    - The plan addresses many different concerns ranging from basic land use planning to restoration 50102
    - How well interested parties concerns were addressed in completing the plan 50402
    - Did all parties have an opportunity to be heard? PT416
  - **Does the Agreement Produce Joint Gains for the Parties?**
    - Are all parties gaining something in the process and conclusions? 40102
    - Results reflect interests of all parties 40501
    - Design a program that effectively balances the environmental and economic goals of all parties. 40702
And the plan was developed in a way to be inclusive of as many diverse interests as possible.

Were all parties at least somewhat better-off as a result? PT416

⇒ **Willingness of the Stakeholders Implement the Decision**
- Unanimous support for trying the planned solution 11804
- All parties remain committed to implementation even eleven years after original plan was adopted. 20903
- Support for implementation. 21201
- Compliance of agreement by collaborators to engage in plan implementation 50702

⇒ **Equity in the Outcomes**

• **Efficiency**
  ⇒ Efficiency: General
  - Process efficiency 30101

⇒ **Resource Efficiency**
  - # of parties contributing output vs. effort expended, value of output 11103
  - Efficiency of resource use (esp. $ + labor/time) 21201
  - Cost effectiveness 40402

⇒ **Time Efficiency**
  - Timely? No 11604
  - Finished under deadline requirement. 20403
  - Timelines in resolving issues and moving forward. 40503
  - Grand Bay NERR was approved and designated in record time and exists under general direction of board (partners) representing state, federal, university & private non-profit entities. 60602

• **Others**
  - Results tested 40904
  - Testing out new techniques 61104
  - Overall organization of the group was great 61004
  - Evaluates success/failure of previous activities 51303
  - Enjoyable 61104
  - The outcomes were somewhat easily defined, however not easily attained. 10203
  - National Economic Development vs. Environmental Quality 10704
  - Completion of plan update that was several years late, despite many attempts over last 3 yrs. 50701
  - Strong beginning, well formulated planning, good discussions and conclusions, weak ending 12402
Positive Determinants of Success

15. Please describe the factors that you think positively or negatively influenced the success of this collaboration. You can list as many as you like.

a. Factors that contributed to success

Member Factors:
- Inclusion/Participation of Stakeholders
  ⇒ Inclusion of All Affected Stakeholders (Intergovernmental Participation)
    - Involvement of all stakeholders 20404
    - The entire community was involved. 21202
    - Representatives of all relevant interest groups were invited to participate in the process 30303
    - [Water Management District coordinator] contacted all parties that had a potential interest. 50203
    - Getting all interested parties and/or stakeholders involved in the planning process at the earliest point possible. 60104
    - We attempted to involve all stakeholders. 60802
    - Attempt to include all parties 61002
    * All relevant regulatory agencies were involved 40303
    * Involvement of all parties – true collaboration 40904
  ⇒ Inclusion of Key Stakeholders
    - Having environmental groups at the ready. 10301
    - Ford Mr. came to the table 10701
    - The people included in the process were for the most part stakeholders 11101
    - Presence of a not for profit industrial environmental organization (Lambton Industrial Society- now called Sarnia Lambton Environmental Association) with a thirty + year record. 11503
    - Also cooperative industrial entities interested in environmental remediation. 11602
    - Participation of all extreme interest groups re: resource use. 20201
    - Involving fund providers (legislators) in process 20903
    - Participation of a number of key individuals on the Bay Environmental Study Team, who have in depth knowledge and many years of experience & persistent efforts. 50601
  ⇒ Multistakeholder Involvement
    - Large diverse group initially 10302
    - Variety of interests, variety of backgrounds, many organizations/ companies. The Rouge River Advisory Council (RRAC) is comprised of members of local governments, MDEQ and other agencies as well as interested citizens. 10801
    - Many people involved 12203
    - Multiple stakeholders 20903
    - Wide representation and participation 20904
    - Program (collaboration) fully funded by feds (EPA) & Program had authority of Clean Water Act & federal administration. These 2 factors promoted broad-based participation. Diversity of participants. 21201
    - Diverse participation 21203
    - Wide participation by not only the main participants, but the general public through the public comment process associated with conservation planning under the ESA. 40301

197
Multi-party oversight of info gathering re instream flows, multi-party discussion & crafting of proposals for 1) Instream flows 2) Fish mitigation 3) Watershed mgmt. 40303

Participation by a diverse group of stakeholders. 50501

Most of the agencies that had a hand in Lake Management were involved. The group worked together to develop a fairly comprehensive Management Plan. 51202

Each contributing agency brought its own local and/or regional focus to the process, thus resulting in a SWIM Plan that was more comprehensive in scope than it otherwise would be. 51301

Input was sought by most affected parties 51304

Inclusion of multiple stakeholders 51501

Diverse group 51701

Involvement of stakeholders. 60101

Multiple parties involved 61002

Review and input from many parties PT406

* Breadth of stakeholders’ sectors eg. Env. Groups through industry 11503

* The broad group of participants 12104

* Diversity of attendees and issues 30502

* Participation by multi agency field scientists 50901

Public Participation/Input

- Public participation, attendance and participation in meetings 10202
- Citizen driven 10404
- Public information and involvement, public interest and pressure 10504
- Local public involvement in the RAP process has provided the few successes that have resulted from the process. 11601
- Outside attention (IJC, Citizen Advisory Group) pushing for progress on AOC 11603
- Good community involvement in public meetings, hearings, etc. 12103
- Good planning mtg attendance, consultation in the communities affected by the process 12303
- Good input from all parties involved. Actual participation of a final phase II report would constitute success. 12403
- Citizen participation 20101
- Citizen stakeholders very active 20401
- Intensity of citizen interest, willingness of other groups not involved in the beginning to join in the process 20403
- Inclusiveness for being in 20601
- Stakeholder-based process 20603
- Strong stakeholder interest and involvement, help from the Sanctuary Advisory Council 30101
- Exhaustive process of public review (NEPA & SEPA) 40303
- Community input. 50304
- Received input from a number of stakeholders 50402
- Public meetings 50703
- Strong public influence 51204
- Presence of good/supportive publics 61001
- Advisory Committees established, numerous public meetings/open meetings 61002
- Opportunities for input (e.g. public meetings, local advisory committees) 61201
- The ongoing, public involvement in the process was vital. PT303
- Local input had a large impact on the plan. 10501
- The RAP revision process is judged by participation 10802
* Does the public understand, care, ask? 11604
* Meetings are each month – well attended by PAC members, new membership recently; more health department participation, more community foundation involvement. 11902
* Public involvement – meetings, public input into document/issues/solutions 12102
* Involvement from w/in the local community 12302
* Expanded community participation 13001
* Open process that public can access 20201
* Even with no authority to enforce implementation participation has been excellent 20903
* # of entities represented 20904
* Inclusion of public in implementation of plan 21004
* Number of participants 21201
* People and organizations’ participation 21204
* # of attendees at public hearings, # of comments submitted to agency 30502
* Degree of involvement by all parties. 40201
* Extent and number of review comments received by formal reviewers and the general public. Most reviewers were happy with the format and content and very few substantial changes were needed. 50801
* Participation 60601
* The number of people and organizations that came to the table to negotiate the plan, continued throughout the planning process, and continue to serve on the management team. 60802

⇒ Education and Outreach
  − Emphasis on public education 10202
  − Good press coverage 12103
  − Outstanding public outreach and education program. 20402
  − Strategies for “using” the local media – entire public outreach effort 20403
  − Educating all stakeholders 20404
  − Good public relations 20702
  − Information and education 20903
  − Outreach efforts prior to hearings (in-person, email, websites, etc.). Extent & type of media coverage 30502
  − Well publicized 61002
  − Our success is dependent on consensus/communication and education! 61802
* Public education/support/interest 21002
* Raising awareness of public to ecology, environmental issues on a broader scale than normal 21004

• Magnitude of Stakeholder Incentives
  ⇒ All “parties” had needs to be met. 40101
  − Motivation of all parties to come up with a solution 40601
  * Everyone has a stake in the outcome 40301

• Commitment of the Collaboration Participants to the Collaboration Process
  − In this case the responsible parties are responsible for the success. They keep the project going & always seem willing to go the extra mile. Dedication to see a problem solved 10103
  − A committed group of partners 10203
  − Committed parties 10802
  − A group of people willing to stay committed over the long term. They didn’t give up and go away. 11602
  − Very dedicated public members 11604
  − Strong staff commitment 11901
  − Long term dedication of most parties. Willingness to seek solutions 20203
Desire to find solutions. Commitment of the parties 20401
Willingness of participants to be involved and stay engaged. 20402
Willingness to take on small work steps en route to larger goals 20702
The genuine will of everyone to see something get done. 20801
Perseverance (20+ years in the making) 30603
Persistence by both state and federal entities. 30604
Desire to “make it work” 40102
Leaders of primary convener groups were dedicated to success. Willingness of conveners to
consider alternatives, willingness of participants to move beyond rhetoric. 40201
Support /coalition approach to an agreed upon position by negotiating parties when position
was challenged in the public review process. 40503
Commitment to developing a program that meets all needs 40702
Most parties had the will to succeed. 40801
Desire to reach an end point by both sides of spectrum 41001
High level of assurances 41004
Firm determination to accomplish plan update by top management. Willingness to work
through problems by staff 50701
Determination for success 60104
Commitment 60601
Staff dedication – willingness to go extra mile 61001
Willingness to go the extra mile to write up the proposal. Follow though on commitment was
outstanding 61004
An attitude that caters to the resource not to the “EGO” = commitment 61802
Dedication of a few parties to making it work. PT406
Commitment to fern conservation by all parties PT409
Both parties were willing to do whatever necessary to complete. PT413
Strong commitment to devoting the required time and energy into the process 10302
Willingness to pursue remediation instead of taking legal avenues. 10504
Although the RAP process is slow, participants remain optimistic that they are making a
difference 11902
* Dedication of participants from start to finish 20403
* On-going commitment to update and reprioritize 20903
* Willingness of participants 21201
* Had high level commitment from State/Fed agencies to make it work, including financial
contributions. Local politicians that were willing to be “partners” 41003
* Strong desire to see protection of the resource! 50304
* A willingness to work w/ others 60102

**Effective Leadership for the Collaboration**

- Excellent leadership and organization of the New York State Department of Water and
  outstanding work by [two individuals there]. 11702
- Excellent leadership 12303
- Skill of the chairperson 12704
- Hamilton Harbour Remedial Action Plan (RAP) coordinator. This person was well respected
  by all parties/stakeholders and worked hard towards consensus building. 12903
- Strong leader 20401
- Ability of citizen chair to listen to everyone & find consensus points & ability of that chair to
  attend all subcommittee meetings & keep continuity plus stop duplication of effort 20403
- Strong leadership 20404
- Efforts by key individuals 20603
– Local leadership that bridged gap between pro/con groups 30603
– Good local leaders 40703
– Strong leadership by city of San Diego 41001
– Highly motivated “point man” 50301
– Process leadership 50304
– Leadership by the Water Mng District was very good. 51704
– Leadership 60602
* Good direction and management 20702

• Agency Attitudes
  ⇒ Flexibility
  – A proactive approach by corporations involved in addressing scientific and technical issues. 10501
  – High degree of initiative, creativity 60104
  – Risk-taking 60604
  * Willingness to look at innovative solution 10504
  ⇒ Turf
  – The lack of interagency rivalry. Willingness of agencies to work towards goals 13002
  – Non-regulatory program that did not usurp anyone else’s authority 60802
  ⇒ Lack of Turnover and Institutional Memory
  – Length of professional careers 10204
  – Continuity of convener reprs and a few key interested parties 11103
  – Ind. representatives of agency remained constant – low/no turnover of staff 40501
  * Lack of turnover 20403
  * Institutional memory 40503
  * Changing personnel + changing understanding of the process & outcomes 40901

• Representative Attitudes
  ⇒ Enthusiasm
  – Enthusiasm in group at the beginning of process 12203
  – Excitement about our mission both w/in the community and amongst staff 61001
  – Enthusiasm 61004
  ⇒ Personalities
  – Good people 12302
  – Tendency to leave egos at the door 21004
  – “can do” attitude of participants 21203
  – Personalities of participants 40701
  – Reasonable people representing the parties PT416
  ⇒ Politics
  – Strict adherence not to get involved in politics – until recently- which I view as a threat to long term viability of the program. 2040
  ⇒ Patience 20601, 40201

Process Factors:
• Ripeness of the Issue / Timing
  – The threat of making the river a Superfund site got all parties involved in the common goal of the environmental dredging of the river. 10102
  – Genuine caring for the quality of life 10204
  – Timing 10703
  – Urgent/visible need to address the problem 12302
  – Genuine concern among citizenry about environmental issues. 20402
– The need for action was clear. 21202
– Knowledge and interest in the problem 40601
– Need to come up with a better way to comply with ESA [saves time, knows up front ESA costs (costs are reasonable)]. Before the HCP lots of dissatisfaction, delays, costs, etc. 40602
– The subject matter under discussion – water supply and species protection – are both very important to society. Both have to happen. One can’t trump the other. 40802
– Interest in issues was high, issues are critical to resource sustainability 50101
– True concern for the resource 50702
– Timeliness in meeting 60102
– Genuine interest among all parties 61201
– All had desire for environmental improvement in the watershed. PT101

• Decision-Making Structure
  ⇒ Equity in Decision Making
  ⇒ Power Distribution among the Parties
  ⇒ Agreement on Ground Rules / Mutually Agreed upon Decision-Making Process
    – Able to make decisions without dispute 10801
    – Multi faceted group agreed to work together by consensus 12701
    – Use of consensus, rather than majority vote 12704
    – Meetings were essential to agree upon processes, 20604
    – Consensus decision making 20903
    – Establishing scope and deadlines 40102
    – Majority of players were not looking at process as zero sum game 41003
    * The process used and the parties involved are compatible. 10203
    * Effort was based on consensus building 20402
    * Striving for and frequently reaching consensus – still doing what’s right for the estuary. 20404
    * Knowledge of agreed upon processes so everyone knows where they stand 20604
    * Completing goals & objectives for mgmt. with consensus 30503
    * All the reviewing agencies were on board with what was contained in the Plans as well as what was proposed. 50801
  ⇒ Proportional Representation
    – Participation was reasonably balanced among the collaborators. 30102

• Availability of Mediators during Crisis Points in Decision Making
  – A “neutral” coordinator – actually a government (MOE) paid official 11503
  – The Muskegon Conservation District (MCD) has served as the “local RAP coordinator” for 8 years. 11902
  – Consultant – Process coordinated by a consulting firm with a lot of experience. Made the process relatively unbiased and decision making meetings were facilitated. 12001
  – Facilitated discussion format 30502
  – Articulate facilitation helped. 40801
  – A funded staff person to coordinate the process 50501

• Organization and Centralization of the Collaboration
  ⇒ Rank of the Participating Agency Representatives
    – High-level management attention on all sides 41004
    – Key decision-maker participation 50304
    * The right people were at the table. 40901
  ⇒ Degree of Formalization of the Collaboration
  ⇒ Level of Resource Commitment to the Collaboration
    * Commitment of resources by participants 20603
* Leveraged resources to get a project done that couldn’t be done otherwise 20801

⇒ Focus of Power in the Collaboration

⇒ Focus of Control in the Collaboration

⇒ Focus of Collaboration Goals
  * Re-aligned priorities by other collaborators to match or be complementary to “ours”, re-aligned policies to be consistent with plan objectives 50702

• The Relationship between the Parties

⇒ Agreement on the Scope of the Collaboration
  – A consistent focused vision 11604
  – Clearly defined goals & objectives 20702
  – Focus 60601
  – Clear identification of roles and boundaries 60802
  – Getting every one on the same page at relatively the same time. 61901

⇒ Shared Ideology / Common Ground among Participants
  – Common interests 10203
  – Meetings were essential to agree upon mutual goals. 20604
  – Parties’ ability to convene around the issue at the center of the collaboration (i.e., Puget Sound) 20901
  – Respect & understanding that the primary purpose of a National Marine Sanctuary is to protect & enhance biodiversity/fish & wildlife first & public use is secondary 30503
  – All parties working toward a common goal (for the most part) 40803
  – Industry predominantly agrees w/ natural resource protection, economy relies on healthy natural environment 50101
  – Consensus on problems, priorities & solutions 50303
  – Same goals, same methods of operation 50602
  – Common purpose of protecting water quality 50603
  – Mostly a common vision 60104
  – Shared vision 60601
  – Mutually desired goals 61202
  – A thorough understanding of the vision statement in the management plan by all parties involved. 61802
  – Shared goals of the major contributing organizations. 61804
  * Defined, agreed upon goals and measures. 12302
  * Common goal to develop a management plan 20402
  * Only had one issue couldn’t find consensus points. 20403
  * Clear goals and objectives 20702
  * Clear explanation of guiding goals and mandates 30101
  * All parties interested in a common goal 51704
  * Successful collaboration occurred because we all agreed our goal 61004

⇒ Negotiating in Good Faith
  – Willingness to listen to all sides. 10504
  – Being reasonable and realistic 11804
  – Willingness to listen to the parties ideas. 13002
  – Cheerful goodwill of committee chairpersons & staff & parties. 20203
  – Listening to all sides of an issue 20404
  – Professional (scientific) respect 40102
  – Willingness to listen and respond /revise through consensus 61501
  – Appreciation of each participant’s role and field of expertise 61902
  – Each party recognized needs of others. PT 416
* When presented the information can the group reach a decision without letting their personal bias hamper agreement 12203
* Being realistic to others’ needs & concerns 60102

⇒ **Existence of Trust in the Relationships**
  - Transparent /mutual trust 12303
  - Trust 12401
  - Absolute honesty and veracity of Federal lead employee. EARNED local trust. 30603
  - Development of trust between parties 40503
  - Building a basis for trust among the participants. The company took a very straightforward approach to their negotiations in being very clear as to what they wanted and could give. 40504
  - Trust developed over time 40702
  - Started with good basis of trust 61501

⇒ **Maintaining Good Interpersonal Relationships among Participants**
  - Friendships and previous alliances, non-threatening atmosphere 11901
  - Personal relationships 12401
  - Respect among parties 20201
  - Local participants, resulting in “more friendly” atmosphere 20603
  - Existing relationships among many parties 20901
  - Good working relationship 30304
  - Respect for individual /organization positions. 30503
  - Personal relationships 40401
  - Excellent working relationships formed & were maintained throughout process 40501
  - Development of personal relationships between parties 40503
  - Relationship developed over time 40702
  - Positive working relationships 40803
  - Personal relationships 41004
  - Good working relationships among participants. 51201
  - Respect for expertise of partner org/ individuals 60604
  - Reserve has established reputation for working with diverse interests in community 61501
  - A positive relationship between management/research/education and the general public. 61802
  - Most had history of working together PT101
  - Excellent working relationship with applicant PT409
  - Good interpersonal relationships (trusting etc.) 12302
  - * Nobody killed anyone in the process! ☺ 20401

⇒ **Establishing Clear Lines of Communication**
  - Ability for groups to interact. 10301
  - Free sharing of information within the group and the community as a whole. 10501
  - Good communication & working solutions amongst the committee members. 11104
  - Openness of industry, government and others to share information and identify strategies to resolve complex environmental issues of concern on the Niagara River. 11704
  - Willingness of academics to explain their study in detail 11901
  - Good communications in the communities affected by the process 12303
  - Open dialogue & appreciation of other parties’ goals and concerns, continued dialogue with all parties 13001
  - Open, transparent, public process 30101
  - Open forum for discussion 30104
Open minded participants, are communications open and constructive? 40102
Extensive communication among stakeholders. 50701
Attitude of open-mindedness for the sake of the resource 50702
Open exchange of scientific information 51301
Communication, openness 60102
Open public meetings and forum for discussion 60802
Good networking and communications, communication was good 61004
Effective communication with all parties 61501
Our success is dependent on consensus/communication and education! 61802
Open communication was very important. PT413
Active networking of science and manager types 12302
Communication between parties regardless of “status” – even citizens had easy access to all
govt staff regardless of level in agency 20403
Open free discussions on points of mutual concern/interest 50602
Ability of partners to open & flexible. E.g. look at the big picture and acknowledge/accept the
hurdles we have to overcome 61001
⇒ Coordination and Cooperation between the Parties
  Cooperation of Federal and State agencies, cooperation of local industries with regulators
10102
  Partnership with USEPA, OEPMA, USACE, Political leaders, community, state of Ohio,
Industry and many more 10104
  Cooperation of local industry 10502
  Cooperation among local affected agencies 10703
  Good cooperation by Canadian agencies. 12204
  Good cooperation with all levels of government initially 12701
  Partnership agencies working together 20101
  Collaborative approaches, better coordination with monitoring programs and efforts to
modify monitoring programs to measure effectiveness of action items. 20103
  Willing collaboration of disparate as well as congenial parties. 20203
  Good collaboration on issues with which the collaborators had experience and expertise in
their own organizations, such as community communication/outreach, goal setting, and
rational establishment of management priorities. 30102
  Collaborative attitude of all parties 40501
  Willingness to resolve differences, ability of people to work together to achieve consensus
40701
  Willingness to negotiate, willingness to compromise 40901
  Willingness to compromise 41001
  Partnership between Water Management Districts 50703
  Cooperation 50903
  Participants … were very cooperative. 51704
  Cooperative attitudes of some parties, extent of cooperation among parties, as indicated by
progress in achieving stated objectives 60604
* The extent of the cooperation all parties have exhibited in pursuing the goals of the revised
plan. 12301
* Extent of collaboration and communication among a full range of agencies and participants.
20904
* Cooperative attitude /help in achieving an acceptable solution vs. “It’s your problem” type
attitude 40503
* Coordination of government agencies, coordination of government agencies with private & non-profit organization 50101
* Cooperation 60102
* All the government agencies Federal/ State/Local and the NGO and the research community are able to coordinate effectively to prioritize all activities that directly and indirectly effect the resource. 61802

- **Professional and Technical Capacities**
  - **Relevant Professional and Technical Capacities: General**
    - Led by an expert; dedicated to the outcome 10404
    - Experts participating 11201
    - Intelligence and knowledge level of the participants 11804
    - Strong staff knowledgeability 11901
    - Good plan writer @ Cons. District 12102
    - Outside experts who could explain complicated processes, people involved who had time, energy and knowledge 12203
    - Well organized RAP team 12303
    - Skills of director + other staff, especially in preparing materials, skills of contractors. 20203
    - Strong direction with experience and knowledge of the system & program 20401
    - First director was local with EPA experience 20403
    - Consensus striving skills 20404
    - Well qualified staff 20702
    - Organized, diligent staff 20904
    - Strong technical support from: Academia, state and Fed. Programs – FWS, USGS, USACE, EPA, ERB, Universities. 21002
    - Attitude of Ctee Chair: Open to suggestions, free form discussions, good group, technically, from different agencies, companies, universities 21004
    - Strong staff. 21204
    - Assistance from [National Marine Sanctuary] staff 30104
    - Technical resources were made available to answer all questions. 40801
    - Good technical resources 41003
    - Scientific expertise 50304
    - Availability of GIS resources during the process, well-established planning program and guidance about plan components/format. 50501
    - Technical & professional depth of staff 50502
    - Known experts 51701
    - Preparation, properly formatted meetings 60102
    - Expert knowledge, good organization 61004
    - Technical support from national office 61104
    - A highly skilled well educated staff and management authority. 61802
    - The involvement of the species expert PT406

- **Availability of Scientific/Technical Information**
  - University and state level scientific input was included 10404
  - Studying/investigation, delisting criteria 11201
  - The science was extensive and useful in addressing immediate technical issues dealing with the worst problems first. 11703
  - Balanced, reasonable scientific background 11901
  - Input by Aquatic Biologist (Cons. District); University Scientist from Grand Valley St. University – Annis Water Res. Instit. EPA. Delisting guidelines/structure published 12102
- Excellent scientific input 12303
- Sound scientific information 30101
- Sustained technical effort/input by biologists 40402
- Exclusive information on biol. resources 40703
- Scientific documentation 50702
- Long term data base of water quality 51303
- Studies 51704
- Provision of information and resources to interested parties. During implementation of the management plan and ongoing research science/scientific fact is a major contribution to the solutions. 60802
* At each meeting all members share valuable information that makes the process work. 10801
* Generation of applicable scientific data, use of the data to create a workable solution 11804
* Was data available and understandable? 12204
* Ability of resource agency participants to gather & analyze relevant data, willingness of conveners to share relevant data. 40201
* Exchange of scientific information and ideas w/ agencies. 51301

- **Science-Based Solutions**
  - Technical solution 11201
  - Consensus on basic principles (eg. Science-based solutions) 20201
  - Science as basis for decision making 20601
  - Science based program by private company – their scientists was a major player in negotiations. 40501
  - The successful incorporation of research into the process. 61802

- **Building on Existing Work**
  - Growing recognition and acceptance of a previous document that aimed at establishing yardsticks for tracking progress and set up target conditions for completion of the task of restoring various resources. 12002
  - Building on previous work 20904
  - Good conservation strategy pre-dating Plan 40703
  - Identify work by other agencies. 50102
  - Existing “model” process & report format 50502
  - The long-term activities and planning of the Bay Environmental Study Team, which provided a well-developed context and plan framework for the SWIM plan. The plan incorporated completely the existing management plan of the Bay Environmental Study Team (BEST), which is a long-term collaborative effort of numerous interests and stakeholders in the community. 50601
  - Attention paid to previous documentation of current problems 51501

**Resource Factors:**

- **Political Support**
  - Partially funded/driven by international treaty (Canadian/American Great Lakes) 10404
  - Involvement by State & Federal elected officials. 10501
  - Backing of governmental officials (Congressmen, Senators, Governor, as well as local officials) 10504
  - EPA guidance 11201
  - Good oversight by local agencies. 11602
  - The Great Lakes Commission supports the Statewide Public Advisory Council for Mich. AOCs. The MCD provides grant-writing & innovative public involvement & educational opportunities to “keep the local process going”. 11902
  - Sufficient federal & provincial government support 12303
- Government backing at beginning 12402
- Political support 20203
- Participation of appropriate state-local agencies and lawmakers 20404
- Broad background of power commitment to the need of program 20703
- Support from citizens who in return put pressure on the governments to keep Peconic Estuary Program as a priority. Through the collaborative process, gained broad based support for initiatives 20801
- Capacity & “political will” of collaborators to adjust policies and commit to action 20901
- Federal support – state gov. support. Government support – all levels. 21002
- The process was supported by Tillamook County Commissioners. 21202
- Adequate support available 21203
- Willingness of core group of locals to speak up in favor of a concept that was widely disfavored. 30603
- High level local/Fed/State political commitment 41003
- Political support for collaboration 50303
- Political support by direct participation50304
- Local policy makers 51701
- The successful incorporation of elected officials into the process. 61802
* Strength of organization and support from all parties 20401

- **Funding**
  - Governor’s Environmental Bond Fund (matching dollars from feds) 10704
  - Expectation that funding was on its way 11901
  - Struggle to find sufficient funds to carry out recommended actions. 12301
  - Money from governments to perform sediment analysis. 12403
  - Funding at all levels 20101
  - Funding 20203
  - Baseline funding which supports a Peconic Estuary Program Office and one person each @ the federal (EPA), state (NYSDEC) and local (Suffolk County Dept. of Health) level. 20801
  - Program (collaboration) fully funded by feds (EPA) 21201
  - The process was supported financially. 21202
  - Adequate resources available 21203
  - EPA has continues to fund implementation. 21204
  - Available funding 40402
  - Funding that is adequate 40702
  - Funding from oil industry 40703
  - Financial commitment combined with cost sharing 41003
  - Timely and adequate funding to effect solutions down the road 50303
  - Likelihood of implementation funding upon plan completion 50501
  - Available funding 51303
  - Money for projects 51704
  - Resources were available, funding 61103
  - Appropriate funding allocated to effort 61104
  - Shared funding for the exercise. 61804
  - Federal money was available to support planning effort. PT101
* We have commitment from the state and private industry for $16,000,000 to be matched by Federal $ 31,500,000 for our project. 10104
* Research money made available 10202
* Parties that put their $ where their mouth is 12302
* Meaningful financial support 20702
* Continued efforts to fund implementation despite a $2 billion budget deficit in the state 20903
* Funding – Public and private sectors. 21002
* Availability of funding to accomplish planning-related tasks. 40201
* Funding contributions from several collaborators 50702
* Ability to get operation & management costs, ability to get $ to support Reserve programs (beyond O & M) 61001

**Project Factors:**

- **Time**
  - Long history of the endeavor 11901
  - Defined deadline – The plan was grant funded with a set deadline to develop a product. It kept the process moving forward. 12001
  - Not rushing or forcing decisions too quickly 20404
  * Open ended time constraint 20702
  * The time-frame for completion of identifiable goals 60604
- **Cost**
  - Cost of project 10703
  - Fair allocation of costs 41004
- **Geographic Scope**
  - A watershed essentially confined to one county 10203
  - Single political jurisdiction! 20401
- **Authority**
  - Program had authority of Clean Water Act & federal administration 21201
- **Others**
  - Toxic substances in the environment 10704
  - Loss of beneficial uses 10704
  - 2-day workshop 11201
  - Personnel to encourage collaboration 61103
  - Acceptance of partnership (vs regulatory) role. 40901
  - Several drafts 61002
  - Plan was an update so not controversial 50703
  - Stakeholders set goals and targets. 12904
  - Defining precisely what needs to be done to implement a recommendation and working with parties outside the process to complete a project. 12301
  - Problems that could initially be solved through technological fixes 12302
  - Broad institutional arrangement that could address the needs of the local … system. 12302
  - Legal standing 40401
  - Steering committee kept to workable size 40601
  - Stakeholders have varying levels of interest and abilities to fund/implement planned activities, but progress has been made. 50503
  - Entities responsible for contamination were in a position to remedy the problems. 12204
  - A well thought out, inclusive plan to select a site and draw up a management plan 60602
  - Understanding the questions that the community would have before we had the public meeting 61004
  - Structure of program 20401
  - Private land ownership patterns, historical land use, lack of development pressure. 60101
  * Realistic expectations 10704
  * The external factors driving the process. 40401
* Substantial in house reviews before the Plan was reviewed externally. 50801
* The degree of focus brought to planning problems in terms of staff and other resources brought to bear on problems. 61804
Negative Determinants of Success

15. Please describe the factors that you think positively or negatively influenced the success of this collaboration. You can list as many as you like.

b. Factors that hindered success

Member Factors:

• Inclusion/Participation of Stakeholders
  ⇒ Inclusion of All Affected Stakeholders (Intergovernmental Participation)
    – Did not include dialogue with corporate stakeholders 10404
    – Lack of participation by many parties (representatives chosen for “political” reasons) 11103
    – Participation was limited because of tight timeline. 12001
    – Few people involved at the end of process 12203
    – The industrial sector was reluctant to fully support the process. 12303
    – Refusal of many from development/builder/real estate to participate – we had some but not enough 20403
    – Too little representation by local governments and watershed groups. 20901
    – Lack of more industry/business support. 21002
    – Largest city was not involved in plan or process. 21204
    – Lead agency selective in involving other parties – restrictive 40904
    – Marginalized players (esp. enviros) suing and causing erosion of program benefits 41004
    – Federal representation is non voting member of board/commission. 61701
  ⇒ Multistakeholder Involvement
    – The entire community was involved. 21202
    – Varied personalities 60104
    – Many players PT406
    * Multistakeholder involvement? No 11604
  ⇒ Lack of Public Participation/Input
    – There was little if any public input that affected policy outcomes – simply a series of general recommendations that were ignored. 11703
    – Limited participation of rural communities 20201
    – Not enough public input into the process 30304
    – Too little involvement by stakeholders 40402
    – Limited or no meetings 50102
    – Extent of input from stakeholders not as widespread as could be hoped for. 50402
  ⇒ Education and Outreach
    – Additionally, we didn’t get the word out often enough about our progress in developing the plan. There was no predictability. PT303

• Magnitude of Stakeholder Incentives
• Commitment of the Collaboration Participants to the Collaboration Process
  – Lack of commitment 40102
• Effective Leadership for the Collaboration
  – Lack of leadership by PAC chair 12102
  – Lack of effective group leadership 12203
  – Lack of leadership in recent years 12403
  – Some periods of poor leadership 20603
Leadership changes after the collaboration led to a divergence from decisions after the plan was adopted. 61804

- **Agency Attitudes**
  - Ignoring public input/concerns by parties
    - Broader community goals and development? objectives were never brought “into the mix” – solutions therefore, while successful at one level, never were able to provide transferability of that technical achievement to more strategic community initiatives. In fact, these have to some extent been hampered by the tech solutions 11703
    - There was a perception that decisions on revisions to the management plan were finalized before interest group reps were asked for input. 30303
    - Lead agency did not listen to public input 40904
    - Didn’t always accept valid concerns and revise the plan accordingly. 50402
    - Coordinating Agency (Alaska Dept. of Fish & Game) initially tried to dismiss Dept. of Natural Resources’ concerns that NERR designation could bring with it federal regulations that determine mgt. of state-owned land and water. ADFG were minimizing these concerns for other landowners such as borough + city that would have federal laws imposed on their land 61002

- **Inflexibility of Organizations**
  - A predetermined approach by a Federal Agency. 10501
  - Paradigms of Superfund activities 10504
  - Unable to de-list segments of AOC where beneficial uses were restored. 10704
  - Reluctance to change overview policies on part of state & fed agencies to make outcomes conform to plans. 20401
  - Some reluctance to change agency behavior. 20402
  - Preexisting intergovernmental agency policies and relations 20702
  - The process was not flexible, protocols of the US National Marine Sanctuary system were sufficiently rigid to dissuade active participation by some groups. 30303
  - Conflicts between state and federal mandates 40401
  - Some, especially in the regulatory agency group, had difficulty in trying new approaches. 40504
  - Resistance to change by Local … agencies 41003
  - Restrictive agency mandates or policies 50702
  - Government representatives unwilling to implement solutions new to them, regardless of success elsewhere 51204
  - Being married to one idea & one idea only 60102
  - * (Lack of) willingness to take calculated risk on the part of the other party 40901

- **Turf**
  - Some agencies unwilling to give up “territory” 10202
  - Turf battles among state agencies 20401
  - Initial fears of turf intrusions 20702
  - Turf battles 20903
  - Turf battles at State level. 21002
  - Agency turf 60604
  - “Turfyness” of non profit organizations … looking at their own program needs rather than the greatest good. In minority in #’s but very vocal. Too much time in fighting petty turf/control issues 61001
  - “Turf” issues – some organizations have singular missions and compete for similar resources or profile within the community 61501

- **Staff Turnover**
The provincial government, which is the lead agency, has changed staff and location several times during the process and has been inconsistent in its collaboration with local participants. Number of changes to personnel assigned to project 11601.

The initial study began in 1989 and finished in 1994 – over 5 years. This is a considerable amount of time to maintain the same personnel. 11704.

Staff turnover between planning and implementation 20201.

Staff/leadership turnover 21201.

Change of county commissioners. 21204.

Staff turnover w/i governmental agencies (loss of institutional memory) 40503.

Lack of institutional memory 41004.

Turnover of state program representation 61701.

Dealing with several representatives of the applicant PT406.

**Bureaucracy/Inefficiency**

Government agencies are so heavy laden with ambiguous, contradictive behavior it’s a wonder anything even gets accomplished. All agencies are so large – they don’t know what they are doing & they do not work well with other fellow agencies. They have no “common” sense, no sense of cost, and unreasonable in demands & expect “you” to do what they cannot do - 10103.


Bureaucracy at Federal and State levels. 21002.

Too many levels of review from state and federal agencies. Constant need to educate new players within agencies. 40601.

**Inconsistency**

Interrelation of government to contradict RAP committee conclusions 12403.

Regulatory agencies not being consistent 40701.

Reach consensus and change opinion later 40702.

**Representative Attitudes**

Lack of enthusiasm by parties at the end of the process 12203.

**Personalities**

Different personalities 20101.

Some residual interagency problems that affect reaching goals 20203.

Intransigence & arrogance of some personnel with federal agency (“We’re the experts here”) brought in as consultants 21004.

Personalities 40102, 60604.

Egos 10301, 10504.

**Politics**

Political persuasion (became less important with time) 11503.

Political agendas at state level. 21002.

It appeared that [the agency] have their own agenda on this issue and are waiting on the appropriate political winds to favor their interest in expanding boundaries of the resource. 30102.

Too much last minute “horse trading” diluted technical considerations 40402.

Political position of Farm Bureau 40703.

Parochial attitudes (NIMBY, no growth masquerading as conservation -ists) 41004.

Legislative (state) politics and mis-appropriation of funds (targeting pet projects) 50702.

Politics prevail!! 60604.
⇒ Hidden agendas
  − All participants had an agenda/bias. 11804
  − “Hidden” agendas 40102
  − Hidden agendas 40702
  − Unsubstantiated opinions expressed by “experts” 50702
  − Hidden agendas were present and have subsequently hindered (but not killed) the progress of the effort. 60604

⇒ Sabotage
  − Non participants waiting to take pot shots… 21203
  − Sabotage by ill-informed opposition. Some individuals, some organizations. 30604
  − “Mis-information” spread by outside parties 40101
  − Presence of special interest groups with a focus on failure of effort 40201
  − Multi-party discussion of instream flow alternatives were deadlocked by certain city staff for many months. City council made last minute decision to remove commercial logging as a management tool. Insistence by City to resolve many unrelated issues in one blanket plan required much time & coordination with many parties: instream flows, logging, salmon hatchery, fish screens, fish ladders. 40303
  − Attempts by lead agency, after change “at the top” to circumvent partners’ presumed “authority” by excluding them from key decisions. 60602

⇒ Shortsightedness
  − Economic short term impacts considered too heavily in decision process. 12102
  − Short sightedness, not looking beyond single issue at hand, forgetting that these issues could be utilized outside of our area of concern. 60102

⇒ Public apathy
  − Continued public apathy 10204
  − Public apathy 12102
  − Overcoming community doubts 61004

⇒ Lack of knowledge and understanding
  − Lack of public understanding of the issues or their seriousness. 12002
  − Participants with insufficient background to understand complicated aspects 12203
  − Lack of depth (in scientific knowledge) of many participants. Resulted in superficial assessments and solutions 20603
  − Limited understanding of the ecosystem (including human’s roles) 20901
  − Lack of understanding by some groups & individuals of what a Habitat Conservation Plan is about. 40802
  − Impatient and ignorant private citizen 50301
  − Lack of understanding of program 60601
  − Misinformation about resource management issues (e.g. feral horses) in the local community 61201
  − (Lack of) knowledge about HCPs PT406

⇒ Ideological opposition
  − Problem that will require broad behavioral/societal changes. 12302
  − Belief among certain stakeholders that ESA was going to go away, was unconstitutional, etc. 40602
  − Local “home-rule” and anti-endangered species sentiments 40703
  − Ideological opposition to Endangered Species Act 41003

Process Factors:
- Ripeness of the issue / Timing
• Decision-Making Structure
  ⇒ Equity in Decision Making
    – There was not equity – decision makers did not equally consider positions &
      recommendations of interest groups to make final decisions. 30303
  ⇒ Power Distribution among the Parties
    – The regulatory agency had all the power so a lot of bad feeling resulted – still healing today. 40402
    – Tribes & sister agencies did not feel empowered 40901
  ⇒ Agreement on Ground Rules / Mutually agreed upon Decision-Making Process
  ⇒ Proportional Representation

• Availability of Mediators during Crisis Points in Decision Making
  – Lack of trained facilitator. Poor meeting management @ times 21201

• Organization and Centralization of the Collaboration
  ⇒ Rank of the Participating Agency Representatives
    – Decision makers weren’t at the meetings where they were needed 10801
    – Lack of county staff involvement at supervisory level so they could understand the
      compromises that were made to get to many of the actions 20403
    – Lack of policy level (decision makers) staff through out process w/i some governmental
      agencies, i.e. technical staff were delegated/ expected to work issues out 40503
    – Parties not being able to make decisions for their agencies. 40601
    – Regulatory agency not adequately representing the position of their agency 40701
  ⇒ Degree of Formalization of the Collaboration
    – Regulation driven by the TMDL process. 51304
    – UDFWS approval process PT406
  ⇒ Level of Resource Commitment to the Collaboration
  ⇒ Focus of Power in the Collaboration
  ⇒ Focus of Control in the Collaboration
  ⇒ Focus of Collaboration Goals
    – Some agencies disagreed over testing spec’s and limits (How clean is clean?) 10102
    – Diffuse communities that have conflicting priorities 10203
    – Different levels of importance (of plan, or the resource) to different parties 11901
    – Lack of agreement on roles and responsibilities for RAPs between EPA & states (GAO report
      has helped solve this). 11902
    – Differing interpretations of the real issues that have to be dealt with. 12301
    – Parties who would not compromise on goals and objectives 12704
    – Different agendas 20101
    – Conflicting goals among state/fed agencies. i.e. forestry vs. wildlife vs. agriculture vs.
      environment 20401
    – Specific issues supported at the expense of the greater picture/ecosystem 20601
    – Distraction of other multi-party collaborative concerns (especially salmon recovery) 20901
    – Parochial interest of local citizens groups, 21002
    – Use of the resource by the partners is different, leading to conflict. 21202
    – Outside parties w/ different agendas 40101
    – Failure to achieve consensus on all aspects of plan goals. 40201
    – Personal biases 40401
    – Plan development not a major priority for collaborators, one collaborator/ entity had
      substantially opposite goals than did everyone else. 50502
Representatives of real estate development interests were defensive and often acted out of self-interest. County staff were reluctant to focus on root cause of the problem and act to address future impacts (urban development of watershed). 51202

Occasionally, the ideas of an agency would conflict with the District’s mission and the goals of the SWIM Plan. In this rare case, an idea(s) may not have been able to be incorporated into the Plan. 51301

Specialist interest groups. 60101

Varied priorities 60104

Special interests 60601

People/organizations had “their own” views of what the reserve was supposed to accomplish, much of which was their own … non written down; which caused problems! 61001

Other commitments more closely tied to the collaborator’s mission 61103

The only hindrance came from special interest “user groups” which were non professional recreational groups that were primarily interested in their activities not the best interests of the resource. This group was incorporated into the planning process without argument and resolved most of the planning problems. They were able to give their input and revision by consensus led to success. 61802

Divergent goals of one organization that wasn’t faithfully reported and factored into the collaboration. 61804

Attempts by others (outside the process), such as Sierra Club, to achieve their own separate agendas. PT416

The Relationship between the Parties

Agreement on the Scope of the Collaboration

Lack of initial focus and common understanding of task at hand by all members 10302

Shared Ideology / Common Ground among Participants

Negotiating in Good Faith

Existence of Trust in the Relationships

Lack of trust between Federal Agency & corporations. 10501

Natural mistrust between people of widely differing education and environmental knowledge. Trust of technical information by all parties. 11503

Limited display of trust between the parties 11604

The commercial & sports fishery very distrustful. 12303

The unresolved boundary issue was a major distraction to the collaborators. This set up levels of mistrust among the collaborators and to some extent the credibility of the agency. 30102

Distrust of state/Federal gov. 60101

Distrust of government in general by a few parties 61201

Suspicion about motives between some of the parties PT406

Maintaining Good Interpersonal Relationships among Participants

Establishing Clear Lines of Communication

Not as “open” a process as previous efforts have been. 30304

Lack of Coordination and Cooperation

Too many overlapping test procedures by various agencies 10102

Lack of coordination between programs within an agency. 10301

Our lake has contaminated lot. Sediments that are from some now closed industries. Hindered success as the companies fought cleanup or tried to get out as cheap as they can. 12103

Limited partnering with other agencies. 50102

Professional and Technical Capacities

Relevant Professional and Technical Capacities: General

Only one state coordinator for RAPs 10701
– Inconsistent facilitators & moderators 30502
⇒ Lack of Scientific/Technical Information
  – Inaccurate information 10504
  – Incomplete scientific knowledge despite vast research 11901
  – Poor data (on US side) 12204
  – Not enough science- research to fully establish extent of problems or what remedy
  appropriate 20401
  – Data limitations 50503
  – This was a new process for this species. Many unknowns. PT413
⇒ Science-Based Solutions
  – Best science often ignored 40904

Resource Factors:
• Political Support
  – Lack of state and federal support 10703
  – Government oversight fell short. 11602
  – Lack of government interest at the end 12402
  – Changes in political priorities of some of participating organizations – individuals still
  committed but mandate eroded. 13001
  – Off again/on again inconsistent state support. Mixed messages as to their support &
  involvement. 30603
  – Lately – state has withdrawn support of local governments & environmental protection 50101
• Funding
  – Money available 10202
  – Lack of significant funding to target the issues 10203
  – No $ for extensive stream restoration or full time-staff 10204
  – Current state of the state (Michigan) the CMI funding is in question 10701
  – Loss of funds from EPA to maintain professional guidance 10704
  – Limited time and funding for staff participation. 10802
  – Economics $ 11101
  – Lack of dedicated funding for the RAP effort (i.e. all of the resources were from other more
  general programs). 11104
  – Funding fell short. 11602
  – Lack of resources directed toward project 11603
  – Inadequate funding 11604
  – Less than adequate funding for research and implementation. 11702
  – A lack of EPA Coastal Environmental Mgt funds to keep Michigan’s AOC program/DEQ
  staff in place over past few years. State/DEQ hiring freeze over past few years 11902
  – Lack of funding (on the United States side) 12204
  – Lack of financial resources. 12302
  – Funding dried up as gov’t changed priorities. 12701
  – Limited resources 13001
  – The ease & speed at which resources are available to achieve goals. 13002
  – Competition for funding 20101
  – Funding to modify/implement action items. 20103
  – Limited financial resources 20201
  – Lack of govt agency financial commitment to do the baseline scientific data simultaneously
  with the planning & waiting until after approval to begin. 20403
- Insufficient funding, resistance from local governments to region wide plan in that it is perceived as an unfunded mandate 20903
- Loss of funding during third year which caused new staff to be hired and process delayed for year. 21204
- Insufficient funds to rapidly move forward on data acquisition, analysis, advanced planning. 40201
- Estimated costs continued to rise sharply as delays hampered completion. The sharp rise in costs nearly resulted in suspension of the project on at least two occasions. 40803
- $ 41001
- Lack of money 41004
- Limited funding 50102
- Shortfalls in state funding have hampered some (but not all) aspects of implementation & updating (as required by law). 50502
- Funding limitations 50503
- Lack of specific funding for comprehensive plan implementation. This affected the planning effort, because it was understood that many plan elements would not be implemented in the foreseeable future. 50601
- No funding is coupled with recommendations, therefore no matter how good the recommendation, it will not work unless fully implemented. 50803
- Lack of adequate funds for outreach & education … to establish identity for the resource 61001
- Control of $$ 60604

**Project Factors:**

- **Time Required for Collaboration**
  - Revision is taking longer than expected (getting input from all parties) 10802
  - Long turn around time for various sampling efforts, 11104
  - The initial study began in 1989 and finished in 1994 – over 5 years. This is a considerable amount of time to maintain a heightened level of interest 11704
  - Short time frame to complete (that was due to staff’s prior commitments 11901
  - The states process to define match for the federal match took too long & therefore lost some funding 12104
  - Time zone for project completion was to loose.12402
  - Time. 12904
  - Length of time 20601
  - In a continued pursuit for “buy-in” by all parties, a delay in decisions & implementation occurred. This lasted a couple of years!! 20604
  - Lack of time to dedicate to tasks 30104
  - Lack of sufficient time to thrash out issues, NOAA has an ambiguous schedule which is in my opinion unrealistic. 30503
  - Lack of sufficient staff time/resources of participating organizations caused the long delays in the effort. 40201
  - The process is time-consuming and finding time for everyone to participate equally is logistically difficult. 40301
  - No timelines/deadlines for action in federal/state agencies. 40601
  - Taking too much time such that new policies change the ground rules 40702
  - Time ⇒ Need to build trust among participant large number of small landowners who were not knowledgeable about issues 41003
The turn-around time for reviewers to complete a thorough review, as well as the technical editors finding time to make interim changes/updates. This delayed the production period and resulted in some of the material appearing “old” in the Plan. 50801

- It took far too long to go through the process. PT303

**Cost**
- Whole process spent (spends) far too much on legal squabbling. 10404
- Huge cost of PCB remediation. 10701
- Costs of alternatives 10703
- Unnecessarily costly mitigation 40402

**Geographic Scope Too Broad**
- Watershed scope sometimes too encompassing. 11201
- Multi-national scope 11603
- Large geographic scale of the area involved. 12002
- The area of concern includes a huge watershed (24000 Sq km) with 24 municipalities. 12303
- Large basin – many local governments 50101

**Issue Scope Too Broad/Complex**
- Technical complexity of river remediation and a need to develop new procedures etc. 11503
- Complexity of the issues 12002
- Too broad a scope of work. Program needed more focus. 21201
- Scope of management plan too large and complex, unnecessarily controversial 30101
- Focus of effort was too broad PT101

**External Factors:**

**Staff Changes at State/Federal Level**
- Changes in government administration 20801
- Change in Presidential administration created problematic delays in the process, and introduced a new set of evaluation standards that further lengthened the process. 30101

**None**
- None. 40801
- None that I know of. 50203
- None…. It was all process. 50304
- None. 51302
- None 51701
- None PT409
- N/A 60802
- + 11 no responses

**Others**
- Inability to prevent dissemination of mis-information about the project’s potential impacts 30101
- Some biological objectives unclear 40402
- Parts of the plan were vaguely written – subject to different interpretations over time. 40901
- Administrative logistics 61104
- Tended to look for “outside” (i.e. Federal or State $) solutions to watershed problems. PT101
- Desire to study or monitor rather than implement solution. PT101
- Results untested – resulted in serious problems w/in two years (1996-1996) problems that still plague the HCP goals. 40904
- Environmental issues 10703
- Alternative remediation sites 10703
- Switch from AOC (Area of Concern) to LAMP (Lakewide Management Plan) 10704
- Delays beyond control of participants. 12401
- Lack of progress by some specific stakeholders. 12903
- Lack of quality of work of some private sector subcontractors 21004
- State and local agencies become defensive about programs their responsible for that don’t work very effectively. 20402
- Some special interest parties argue emotionally in spite of facts 20404
- Insecure government agency employees. 20702
- At times, getting consensus was difficult 20801
- The roles of some parties were not well defined (e.g. Army Corps, tribe) or too limited, i.e. King County. 40303
- The major issue regarding the size of the resource (boundaries) to be protected has not been resolved, and appears to be out of the hands of the collaborators to be decided by the Federal agency. 30102
- Some key players had issues that required resolution 40803
- Adaptive management not fully exercised. ((Lack of) willingness to take calculated risk on the part of the other party) 40901
- Overload of environmental concerns 50602
- A large amount of documentation and progress reporting that had to be summarized in an equitable manner. 50701
- There are no factors that are genuinely linked to performance (e.g., no funding is coupled with recommendations, therefore no matter how good the recommendation, it will not work unless fully implemented.) 50803
- State of the Ant. of water quality restoration 51303
- Limited “improvement” opportunities in land use. 51303
- Realization that too much development had already taken place & to buy many properties & replace a lot of infrastructures would be beyond our means. 51704
- Expectations varied 61202
- Just the fact that it’s hard to coordinate all the collaborators time & schedules. 61901
APPENDIX D

HUMAN SUBJECTS APPROVAL

Office of the Vice President
for Research
Tallahassee, FL 32306-2763
(850) 644-6788 • FAX (850) 644-4392

APPROVAL MEMORANDUM
from the Human Subjects Committee

Date: October 9, 2002
From: David Quadagno, Chair

To: Aysin Dedekorkut
MC: 2280
Dept: Urban and Regional Planning
Re: Use of Human subjects in Research
Project entitled: Determinants of Success In Interorganizational Collaboration For Natural Resource Management

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be exempt per 45 CFR § 46.101(b)2 and has been approved by an accelerated review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals which may be required.

If the project has not been completed by October 8, 2003 you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. Also, the principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols of such investigations as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance Number is IRB00000446.

Cc: Dr. Robert Dayle
APPLICATION NO. D2.495

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REFERENCES


BIOGRAPHICAL SKETCH
AYŞIN DEDEKORKUT

Florida State University Phone: (850) 644 7220
Department of Urban and Regional Planning Fax: (850) 645 4841
Tallahassee, FL 32306-2280 E-mail: add6628@garnet.acns.fsu.edu

EDUCATION
   Dissertation: Determinants of Success in Interorganizational Collaboration for Natural Resource Management.
   Dissertation Committee: Robert E. Deyle (chair), Bruce Stiftel, Richard C. Feiock.
Master of City and Regional Planning. May 1996. Clemson University, Clemson, South Carolina.
Master of City Planning Program (No degree acquired- Continued Studies Abroad). January 1993 - June 1993. Middle East Technical University, Ankara, Turkey.

AREAS OF INTEREST
- Environmental planning and natural resource management with particular focus on water resources management
- Collaborative planning, consensus building, and alternative dispute resolution
- Collective action problems
- Ecosystem management and sustainability

TEACHING EXPERIENCE
Graduate Level:
- Water Resource Conflicts (URP 5429/POS 5032). Departments of Urban and Regional Planning and Political Science, Florida State University. Spring 2003.
   Responsibilities: Assisted in the selection of reading material; developed case studies used by the students as models, worked as teaching assistant and participated in the classroom, helped guide student research.
Introduction to Environmental Planning and Resource Management (URP 5421/4423). Department of Urban and Regional Planning, Florida State University. Spring 1998. 
Responsibilities: Participated in the classroom, assisted in grading exams and assignments, lectured as guest instructor.

Undergraduate Level:

- Introduction to Planning and Urban Development (URP 3000). Department of Urban and Regional Planning, Florida State University. Summer 2001 and Fall 2001.
- Introduction to Environmental Planning and Resource Management (URP 4423). Department of Urban and Regional Planning, Florida State University. Fall 1998 and Summer 2000.

Responsibilities: Full responsibility including the selection of reading material, course design, teaching and grading for the above courses.

RESEARCH EXPERIENCE


  Responsibilities: Identified and provided background information on water related conflicts in Florida, assisted in the selection of the cases that will be studied, conducted two of the case studies that will be the basis of a conference, assisted in a Water Resources Conflicts seminar and the preparation a conference that will take place in November 2003, edited the Case Book for the conference.


  Responsibilities: Prepared a literature review on transit security and assisted in the preparation and administration of a mail survey of transit employees in Florida, analyzed the data and wrote up the results for the final report.

- Transportation Dispute Resolution in Florida Project, Graduate Research Assistant to Florida Conflict Resolution Consortium Supervisor: Prof. Bruce Stiftel. August 2000-April 2001., Florida State University, Tallahassee, FL.

  Responsibilities: Assisted in identifying Best Management Practices for Florida Department of Transportation through a literature review on the subject.


  Responsibilities: Assisted in the preparation of a survey of mediation participants, administered the phone survey, supervised data entry, and conducted data analysis.

- Ninety Six, South Carolina, Comprehensive / Strategic Planning Project Studio Team Member. Fall 1994. Department of City and Regional Planning, Clemson University.

  Responsibilities: Developed the infrastructure and public utilities inventory of the town with two classmates, and developed an alternative comprehensive plan with a group of classmates.


Ankara's “Old” City Center Urban Renewal Project, Surveyor. Summer 1990. College of Architecture, Middle East Technical University, Ankara, Turkey. Responsibilities: Conducted face-to-face surveys of businesses in the old city center about the proposed renewal.


BOOK CHAPTERS


REPORTS AND OTHER PUBLICATIONS


EDITORSHIP

PRESENTATIONS AT PROFESSIONAL CONFERENCES


WORKSHOPS
- Association of European Schools of Planning PhD Workshop, Volos, Greece, July 5-9, 2002.
FELLOWSHIPS, HONORS AND OTHER GRANTS

- Fannie Mae Foundation Association of European Schools of Planning PhD Workshop Travel Grant, July 2003.
- Fannie Mae Foundation Association of European Schools of Planning PhD Workshop Travel Grant, July 2002.
- Fannie Mae Foundation Association of Collegiate Schools of Planning PhD Workshop Travel Grant, August 2001.
- Florida State University Office of Graduate Studies Dissertation Research Grant, Fall 1999.
- Citation in Planning - Second Year Award, College of Arts, Architecture, and Humanities, Clemson University, 1996.
- Turkish Higher Education Council Scholarship for Graduate Education Abroad, 1993.

LEADERSHIP ACTIVITIES AND SERVICES

- Academic Personnel Committee PhD Student Representative. Department of Urban and Regional Planning, Florida State University, December 2002-present.
- PhD Policy Committee Student Representative. Department of Urban and Regional Planning, Florida State University, August 1997-August 1999.
- Editorial Board Member. Media, Student Journal of Faculty of Architecture, Middle East Technical University, 1993.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- American Planning Association Florida Chapter, 1996-present.
- American Planning Association Student Chapter, Clemson University, 1994-1996.
- Chamber of City Planners of Turkey, 1987-1993.