

August 1993

# WATER RESOURCES

## Factors That Lead to Successful Cost Sharing in Corps Projects



---

---



United States  
General Accounting Office  
Washington, D.C. 20548

---

Resources, Community, and  
Economic Development Division

B-252187

August 12, 1993

The Honorable Max S. Baucus  
Chairman, Committee on Environment  
and Public Works  
United States Senate

The Honorable Norman Y. Mineta  
Chairman, Committee on Public Works  
and Transportation  
House of Representatives

The U.S. Army Corps of Engineers, a major federal agency responsible for the development of the nation's water resources, was required by the Water Resources Development Act of 1986 to develop a cost-sharing partnership with local sponsors of water projects. These projects are for flood control/damage, water supply, hydroelectric power, and recreation. The sponsors generally are local or state governments or other public entities, such as flood control districts or port authorities, that initiate requests for assistance under the Corps' Civil Works Program.

Our November 1991 report on the Corps' implementation of project cost sharing,<sup>1</sup> which presented 445 sponsors' aggregate responses to a questionnaire we sent them, showed that sponsors were generally satisfied with their ability to interact with Corps staff and affect key project decisions. Nevertheless, a majority of these sponsors reported that they were treated as "somewhat subordinate" by the Corps rather than as "equal partners."

As agreed with your offices, we have further analyzed the responses and have identified (1) the factors that the sponsors perceived contributed most significantly to a successful partnership with the Corps and (2) the sponsors' concerns about cost sharing and the relationship between those concerns and the Corps division that oversaw the project and the type of projects.

---

## Results in Brief

Three factors contributed most significantly to sponsors' perception of a successful relationship with the Corps: (1) good communications between the Corps and the sponsor, (2) the sponsor's significant involvement in

---

<sup>1</sup>Water Resources: Local Sponsors' Views on Corps Implementation of Project Cost Sharing (GAO/RCED-92-11FS, Nov. 15, 1991).

---

decisions and activities, and (3) the Corps' responses to the sponsor's concerns about cost-sharing agreements.

A primary concern sponsors had about cost sharing related to the inability of the sponsors to pay their share of study or project costs. The inability to pay generally related to flood control/damage projects in the Corps' Southwestern (Dallas) and North Central (Chicago) Divisions. The other primary concern sponsors had related to changes in the cost-sharing agreements at different Corps review levels; this concern was noted most frequently in the Corps' North Central Division.

---

## Background

A proposed civil works construction project usually begins when a citizen or community identifies a water resource problem, which is then referred to the Corps of Engineers.

As described in table 1, project development generally occurs in four phases, with both the sponsor and the Corps participating. During any of these phases, a project may be delayed or terminated if costs increase because of such factors as environmental problems, the inability of a sponsor to pay its share of costs, or the Corps' budget policies.

The sponsor's share of project costs is set forth in two agreements: the feasibility cost-sharing agreement (FCSA) and the local cooperation agreement (LCA). The FCSA, completed during the reconnaissance phase, is an agreement between the Corps and a nonfederal sponsor to share equally in the cost of the feasibility phase. The FCSA specifies the obligations of both parties, including the payment method, record maintenance, and management and coordination responsibilities. An LCA, which is executed prior to construction of each project, contains conditions similar to the FCSA's on record maintenance and management and coordination. (The Corps changed the title of the agreement to the project cooperation agreement in Aug. 1992.) The LCA is distinct from the FCSA in that the LCA spells out the nonfederal sponsor's share of the construction costs with the Corps—the exact percentage depends on the project's purpose and ranges from 10 to 50 percent. Both agreements are negotiated by the sponsor and Corps district managers and are subject to the approval of Corps management.

Generally, costs incurred during all but the first phase—reconnaissance, which is federally funded—are shared by the sponsor and the Corps. In the second phase—feasibility—the sponsor shares equally in the cost. The

sponsor also shares in the costs of the third and fourth stages: preconstruction engineering and design (PED) and construction; the exact percentage depends on the project's purpose and ranges from 10 to 50 percent. A limited part of a sponsor's contribution may be in the form of in-kind services rather than cash, as allowed by the Corps.

Each project is either a general investigation or a continuing authority project. General investigation projects generally cost more than \$5 million and require congressional authorization of funding. Continuing authority projects cost between \$500,000 and \$5 million and do not require authorization.

**Table 1: The Four Phases of Water Projects**

Phase	Actions taken
Reconnaissance	The Corps performs a federally funded study to determine whether the project is plausible and the project's benefits will exceed costs. The Corps and the sponsor develop and sign the FCSA.
Feasibility	The Corps and the sponsor address technical, economic, and environmental aspects of the water resource need and assess the proposed project's environmental impact. Both parties are involved in developing the feasibility report and the LCA.
Preconstruction engineering and design (PED) <sup>a</sup>	The Corps' field staff and the sponsor meet with the Corps' headquarters management to approve project documents. The LCA is executed and the sponsor handles real estate and legal work required for the project.
Construction	Local sponsors perform land acquisition and related activities. The Corps solicits and reviews bids for construction and awards the contracts. The sponsor may help construct the project to meet some of its cost-sharing responsibilities. A final audit determines the project's total cost, and the government's and the sponsor's share of the cost.

<sup>a</sup>For continuing authority projects, this phase is referred to as the plans and specifications phase.

### Three Factors Increased Likelihood of Successful Sponsor/Corps Relationships

Our analysis of the questionnaire responses, discussed in detail in appendixes I and II, showed that a sponsor was most likely to see its relationship with the Corps as successful when the following conditions were present:

- Good communication existed between the Corps and the local sponsor. For example, sponsors cited the Corps' providing substantive and prompt information as contributing significantly to sponsors' perceptions of a successful sponsor/Corps relationship in the reconnaissance phase of a project. During this phase, a sponsor may request information about in-kind products or services it may contribute as part of its cost sharing for the next phase (feasibility). Sponsors also cited good communication in

the PED phase when the Corps provided adequate information on project costs and design alternatives.

- The sponsor was actively involved in decisions and meetings. For example, the belief of the sponsor that its views had a great or very great impact on key decisions contributed significantly to the perception of a successful relationship in the reconnaissance, PED, and construction phases. A sponsor that saw the Corps as extremely or very open to the sponsor's design or other preferences in the PED phase was more likely to believe that it was considered as an equal partner. Also, in the reconnaissance phase, a sponsor's active involvement was important to success.
- The Corps responded to the sponsor's concerns about cost sharing. For example, during the feasibility phase, a successful sponsor/Corps relationship was more likely if the Corps made a great or very great effort to address the sponsor's specific concerns about the feasibility cost-sharing agreement, such as a change in cost estimates for the feasibility study.

In addition, sponsors in the PED/construction phases were less likely to have a successful relationship with the Corps than sponsors in other phases of development. That is, only 37 percent of the 281 PED/construction sponsors said they were treated as equal partners, and about 59 percent of PED/construction sponsors said that they were treated as either somewhat or very subordinate. In the feasibility phase, 48 percent or more of sponsors gave responses that were consistent with having a successful relationship with the Corps.

## Sponsors' Concerns About Cost Sharing

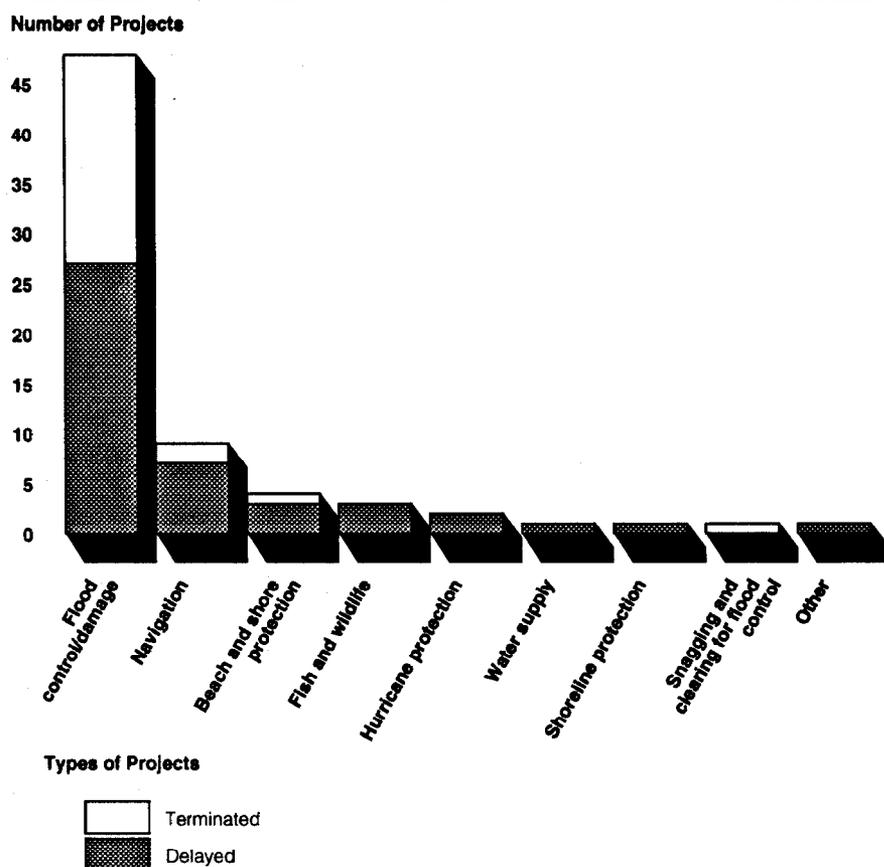
The leading concern sponsors had about cost sharing was with the total cost of the study or project. This concern may be attributable, in part, to the difficulty sponsors often have in paying their share of the project. Another frequent concern was with the cost-sharing agreements. Changes in the LCA and conflicts among Corps officials during FCSA negotiations were cited as examples of these concerns.

## Concerns About Total Study or Project Costs and Ability to Pay

Of the 216 projects that were delayed or terminated, 70, or 32 percent, were delayed or terminated because the sponsor lacked financial capability. As shown in figure 1, 48 of those 70 projects were for flood control/damage—including 29 continuing authority and 19 general investigation projects. Over half of all these delayed or terminated flood control/damage projects were in the Corps' Southwestern and North

Central Divisions. Appendix III contains additional information on the types and locations of the projects delayed or terminated.

**Figure 1: Types of Projects Delayed or Terminated Because Sponsor Lacked Financial Capability**



**Concerns About Changes in Cost-Sharing Agreements**

Sponsors also reported concerns about changes in cost-sharing agreements; the largest number of sponsors expressing concerns about changes in the LCA were in the Corps' North Central Division. In addition, 62 of the 83 feasibility-phase sponsors we surveyed (75 percent) indicated concerns with the FCSA. Of those sponsors, 12 (19 percent) cited concern about conflicts among headquarters, division, and district-level Corps officials during FCSA negotiations. The Southwestern Division had the highest number of sponsors (four) with this concern. Also, nine, or 75 percent, of the projects that had sponsors with this concern were for flood control/damage projects.

---

Of the 281 PED/construction sponsors, 106 (38 percent) expressed concerns about the LCA; of the 106, 40 indicated specific concern about changes in the LCA that resulted from reviews by various levels of Corps officials. For example, one sponsor noted that although the district had allowed the sponsor to perform work instead of making a cash contribution in one aspect of its project, a headquarters review rejected that substitution. As a result, the sponsor received only partial credit for work already performed.

Of the 40 sponsors concerned about LCA changes, 36 had general investigation projects; about a third of the sponsors with this concern (14) were in the North Central Division. In terms of project types, 23, or 58 percent, of the sponsors concerned about LCA changes had flood control/damage projects; the project type with the next highest percentage of concern in this category was navigation, with eight sponsors, or 20 percent.

---

## Agency Comments

We discussed the results of our work with senior Army and Corps officials, including the Deputy Assistant Secretary of the Army for Planning, Policy, and Legislation, and the Deputy Director, Corps Directorate of Civil Works. They told us the data would be very useful for their future program management. We incorporated their suggested clarifications and corrections to the data where appropriate. As requested, we did not obtain written agency comments on a draft of this report.

---

## Scope and Methodology

Our analysis was conducted on 455 questionnaires received from local sponsors that had cost-shared projects with the Corps. Our universe of projects was determined on the basis of the projects' status as of June 30, 1990. The questionnaires were received from 448 local sponsors; some sponsors were responsible for more than one project. Data collection on the questionnaires ended as of June 4, 1991.

We recognize that the data for this analysis were obtained about 2 years ago and may not necessarily reflect the current views of the sponsors. However, senior Army and Corps officials told us that in terms of future program management, the data would be particularly useful to them in knowing which Corps divisions were relating to sponsors better than other divisions.

---

In assessing the factors that increased the likelihood of successful sponsor/Corps relationships, we made use of, among other things, sponsors' responses to a question about the extent to which they believed they were treated by the Corps as equal partners. While the degree of partnership between the Corps and the local sponsor is not specifically required in law or policy, both these entities have agreed that interaction and cooperation are vital to the success of the water resource projects. Therefore, we used these data as a measure of a successful relationship between the two parties in jointly developing and financing a project. Additional information on the methodology we used to identify characteristics of successful relationships is included in appendix IV.

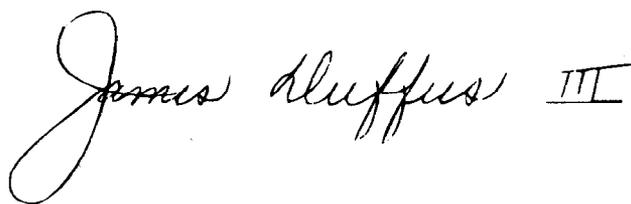
To relate the sponsors' concerns about cost sharing according to various sponsor subgroups, Corps divisions, and type of project, we analyzed our questionnaire results and arrayed the data by each subset.

Our work was performed between April 1992 and February 1993 in accordance with generally accepted government auditing standards.

---

We are sending copies of this report to the appropriate Senate and House Committees, interested Members of Congress, the Secretaries of Defense and Army, and the Chief, U.S. Army Corps of Engineers. Copies will also be made available to others upon request.

Please contact me at (202) 512-7756 if you or your staff have any questions concerning this report. Major contributors to this report are listed in appendix V.

A handwritten signature in cursive script that reads "James Duffus III". The signature is written in black ink and is positioned above the printed name and title.

James Duffus III  
Director, Natural Resources  
Management Issues

---

# Contents

---

Letter	1
Appendix I Sponsors' Perceptions of the Extent to Which They Were Equal Partners With the Corps	12
Appendix II Sponsors Were Concerned About Cost-Sharing Agreements, Corps Management Reviews, and Problems Related to Land Acquisition	16 16 21 24
Appendix III Projects Delayed or Terminated Because the Local Sponsor Lacked Funding Capability	28

---

<p><b>Appendix IV</b>  <b>Methodology Used in</b>  <b>Identifying</b>  <b>Characteristics of</b>  <b>Successful Corps and</b>  <b>Local Sponsor</b>  <b>Relationships</b></p>	<p>32</p>																				
<p><b>Appendix V</b>  <b>Major Contributors to</b>  <b>This Report</b></p>	<p>40</p>																				
<p><b>Tables</b></p>	<table border="0"> <tr> <td style="padding-left: 20px;">Table I: The Four Phases of Water Projects</td> <td style="text-align: right; vertical-align: bottom;">3</td> </tr> <tr> <td style="padding-left: 20px;">Table II.1: Total Responses Indicating Any of the Top Five Concerns with the FCSA, by Project Type and Division</td> <td style="text-align: right; vertical-align: bottom;">18</td> </tr> <tr> <td style="padding-left: 20px;">Table II.2: Total Responses Indicating Any of the Top Five Concerns About the Local Cooperation Agreement, by Project Type and Division</td> <td style="text-align: right; vertical-align: bottom;">20</td> </tr> <tr> <td style="padding-left: 20px;">Table II.3: Projects of 12 Sponsors Concerned About Intra-Corps Conflicts During Negotiations of the FCSA, by Division</td> <td style="text-align: right; vertical-align: bottom;">22</td> </tr> <tr> <td style="padding-left: 20px;">Table II.4: Projects of 40 Sponsors Concerned About Changes in LCAs Because of Reviews by Varying Levels of Corps Officials</td> <td style="text-align: right; vertical-align: bottom;">22</td> </tr> <tr> <td style="padding-left: 20px;">Table II.5: Projects of Five Sponsors Concerned About Added Work and Cost Changes in the Feasibility Phase, by Division</td> <td style="text-align: right; vertical-align: bottom;">23</td> </tr> <tr> <td style="padding-left: 20px;">Table II.6: Projects of 36 Sponsors Concerned About Length of Time for Corps Headquarters Review of Local Cooperation Agreement</td> <td style="text-align: right; vertical-align: bottom;">23</td> </tr> <tr> <td style="padding-left: 20px;">Table II.7: Total Responses Indicating Any of the Top Five Concerns About Problems Associated With Land Acquisition, by Project Type and Division</td> <td style="text-align: right; vertical-align: bottom;">26</td> </tr> <tr> <td style="padding-left: 20px;">Table III.1: Types of Projects Delayed or Terminated for Lack of Local Sponsor Funds, by Funding Type</td> <td style="text-align: right; vertical-align: bottom;">29</td> </tr> <tr> <td style="padding-left: 20px;">Table IV.1: Crosstabulation Between Adequacy of Information Provided by Corps on Cost of Project and Local Sponsor's Feeling that It was an Equal or Subordinate Partner With the Corps</td> <td style="text-align: right; vertical-align: bottom;">33</td> </tr> </table>	Table I: The Four Phases of Water Projects	3	Table II.1: Total Responses Indicating Any of the Top Five Concerns with the FCSA, by Project Type and Division	18	Table II.2: Total Responses Indicating Any of the Top Five Concerns About the Local Cooperation Agreement, by Project Type and Division	20	Table II.3: Projects of 12 Sponsors Concerned About Intra-Corps Conflicts During Negotiations of the FCSA, by Division	22	Table II.4: Projects of 40 Sponsors Concerned About Changes in LCAs Because of Reviews by Varying Levels of Corps Officials	22	Table II.5: Projects of Five Sponsors Concerned About Added Work and Cost Changes in the Feasibility Phase, by Division	23	Table II.6: Projects of 36 Sponsors Concerned About Length of Time for Corps Headquarters Review of Local Cooperation Agreement	23	Table II.7: Total Responses Indicating Any of the Top Five Concerns About Problems Associated With Land Acquisition, by Project Type and Division	26	Table III.1: Types of Projects Delayed or Terminated for Lack of Local Sponsor Funds, by Funding Type	29	Table IV.1: Crosstabulation Between Adequacy of Information Provided by Corps on Cost of Project and Local Sponsor's Feeling that It was an Equal or Subordinate Partner With the Corps	33
Table I: The Four Phases of Water Projects	3																				
Table II.1: Total Responses Indicating Any of the Top Five Concerns with the FCSA, by Project Type and Division	18																				
Table II.2: Total Responses Indicating Any of the Top Five Concerns About the Local Cooperation Agreement, by Project Type and Division	20																				
Table II.3: Projects of 12 Sponsors Concerned About Intra-Corps Conflicts During Negotiations of the FCSA, by Division	22																				
Table II.4: Projects of 40 Sponsors Concerned About Changes in LCAs Because of Reviews by Varying Levels of Corps Officials	22																				
Table II.5: Projects of Five Sponsors Concerned About Added Work and Cost Changes in the Feasibility Phase, by Division	23																				
Table II.6: Projects of 36 Sponsors Concerned About Length of Time for Corps Headquarters Review of Local Cooperation Agreement	23																				
Table II.7: Total Responses Indicating Any of the Top Five Concerns About Problems Associated With Land Acquisition, by Project Type and Division	26																				
Table III.1: Types of Projects Delayed or Terminated for Lack of Local Sponsor Funds, by Funding Type	29																				
Table IV.1: Crosstabulation Between Adequacy of Information Provided by Corps on Cost of Project and Local Sponsor's Feeling that It was an Equal or Subordinate Partner With the Corps	33																				

---

Table IV.2: Adjusted and Unadjusted Associations of the Sponsor's Feeling Like an Equal Partner With the Corps by Two Sponsor Characteristics in the PED Phase	34
Table IV.3: Adjusted and Unadjusted Associations of Satisfaction With the Relationship With the Corps, by Selected Sponsor Characteristics in the Reconnaissance Phase	36
Table IV.4: Adjusted and Unadjusted Associations of Local Sponsor's Feeling Like an Equal or Subordinate Partner With the Corps, by Selected Sponsor Characteristics in the Feasibility Phase	37
Table IV.5: Adjusted and Unadjusted Associations of Local Sponsor's Feeling Like an Equal or Subordinate Partner With the Corps, by Selected Sponsor Characteristics in the PED Phase	37
Table IV.6: Adjusted and Unadjusted Associations of Local Sponsor's Feeling Like an Equal or Subordinate Partner With the Corps, by Selected Sponsor Characteristics in the Construction Phase	39

---

## Figures

Figure 1: Types of Projects Delayed or Terminated Because Sponsor Lacked Financial Capability	5
Figure I.1: How Sponsors Perceived Their Relationship With the Corps During the Feasibility Phase, by Division	13
Figure I.2: Local Sponsors That Believed They Were Considered Equal Partners With the Corps During the PED/Construction Phases, by Division	14
Figure I.3: How Sponsors Viewed Their Relationship With the Corps During Feasibility and PED/Construction Phases, by Division	15
Figure III.1: Types of Projects Delayed or Terminated for Lack of Sponsor Funds	28
Figure III.2: Flood Damage/Control Projects Delayed or Terminated for Lack of Sponsor Funds, by Division and Funding Type	30
Figure III.3: Flood Damage/Control Projects Delayed or Terminated, by Phase and Funding Type	31

---

## Abbreviations

FCSA	feasibility cost-sharing agreement
LCA	local cooperation agreement
PED	preconstruction engineering and design



---

# Sponsors' Perceptions of the Extent to Which They Were Equal Partners With the Corps

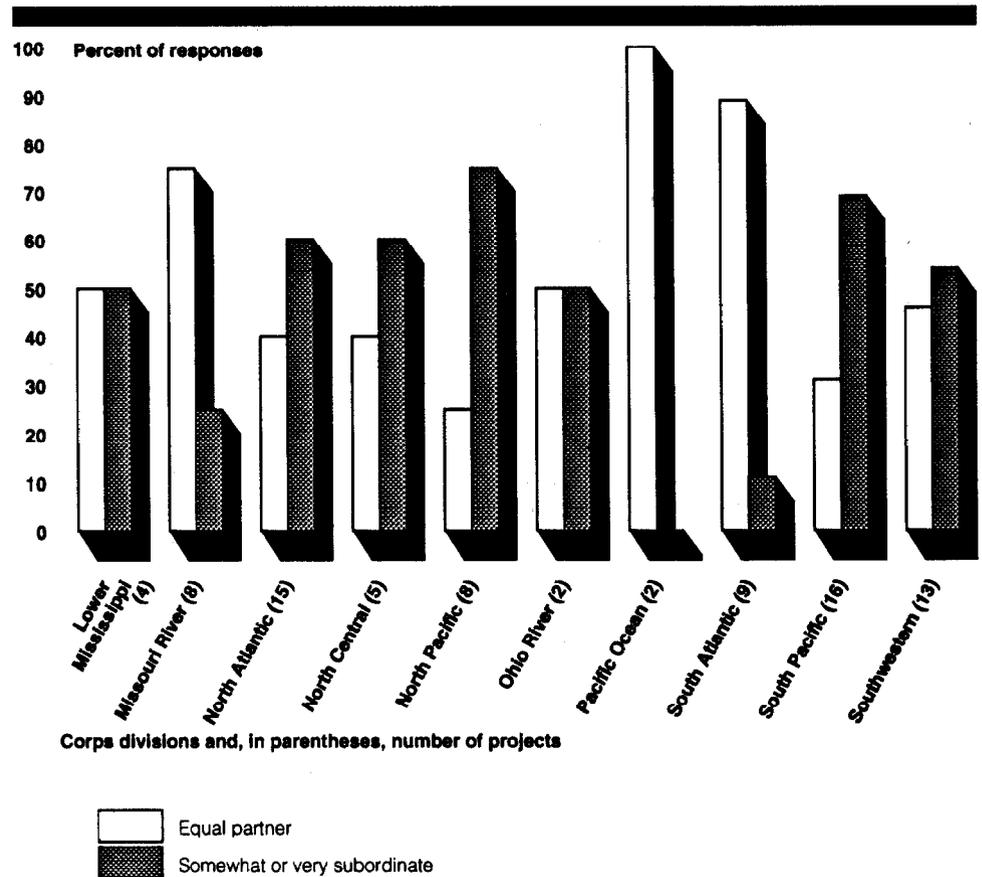
---

In assessing the incidence of successful sponsor/Corps relationships, we used, among other things, responses to a question about the extent to which sponsors believed they were treated as an equal or subordinate partner in their work with the Corps. Although the Corps has no requirement to treat sponsors as equal partners, there is an obligation to achieve joint partnerships to ensure the development of the nation's water resource projects. Therefore, we used sponsors' responses as a measure of the success of the relationship between the two parties in jointly developing and financing a project.

Of the 83 sponsors in 10 Corps divisions with projects in the feasibility phase, 40 (48 percent) said they were treated as an equal partner, 42 (51 percent) said they believed they were considered somewhat or very subordinate. As shown in figure I.1, the Pacific Ocean (Honolulu) division had the highest percentage of sponsors indicating that they were an equal partner (100 percent for two projects); at the other extreme, the North Pacific (Portland) division had the highest percentage of sponsors indicating that they believed that they were considered somewhat or very subordinate (75 percent for eight projects).

**Appendix I  
Sponsors' Perceptions of the Extent to  
Which They Were Equal Partners With the  
Corps**

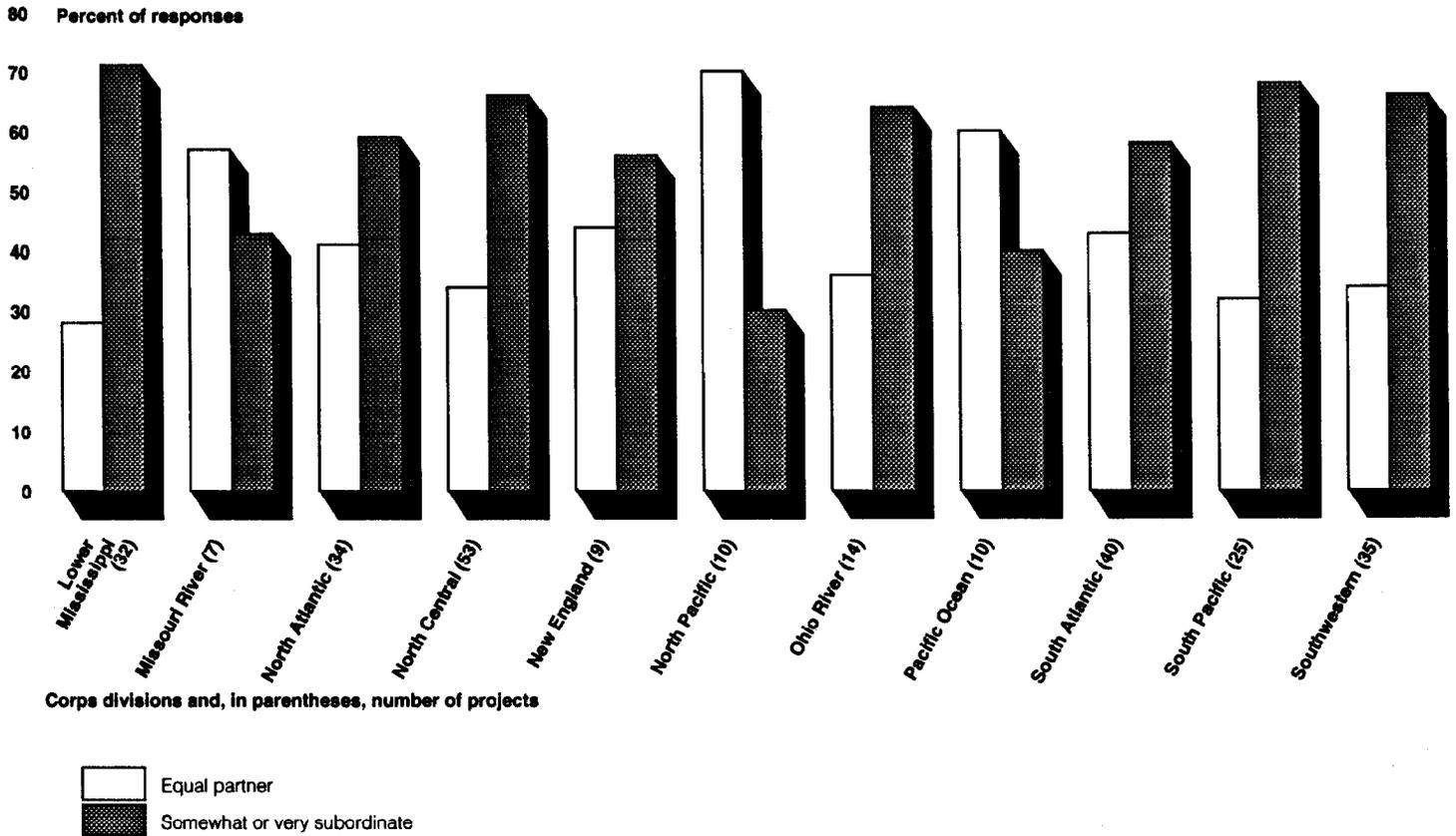
**Figure I.1: How Sponsors Perceived  
Their Relationship With the Corps  
During the Feasibility Phase, by  
Division**



Of the 281 sponsors in 11 Corps divisions with projects in the PED/construction phases, 104 (37 percent) said they were treated as an equal partner, 119 (42 percent) said they were considered somewhat subordinate, and 46 (16 percent) said they were considered very subordinate. As shown in figure I.2, the North Pacific division had the highest percentage of sponsors indicating they considered themselves as equal partners (70 percent for 10 projects), and the Lower Mississippi (Vicksburg, Mississippi) division had the highest percentage indicating they were somewhat or very subordinate (72 percent for 32 projects).

**Appendix I  
Sponsors' Perceptions of the Extent to  
Which They Were Equal Partners With the  
Corps**

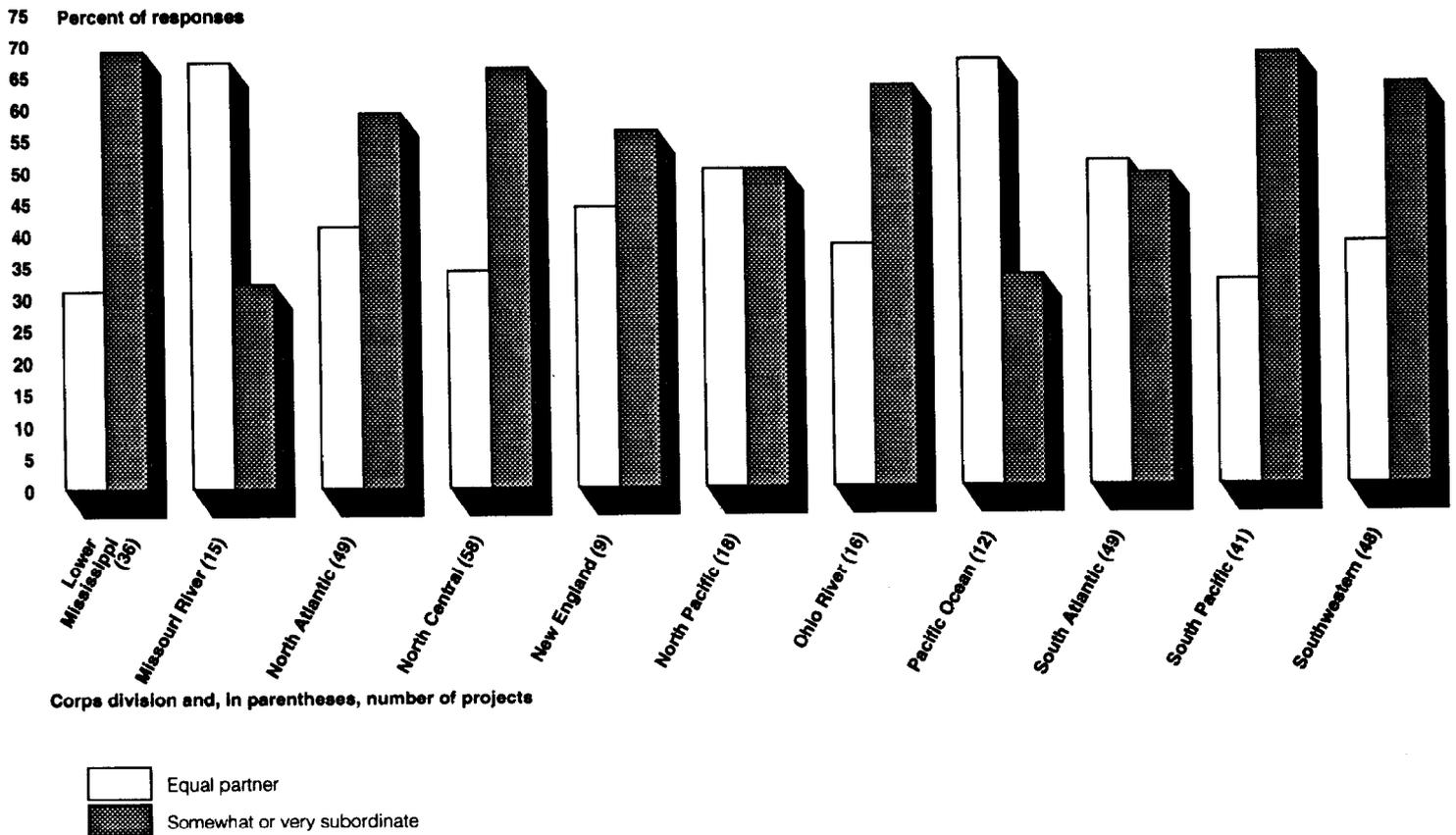
**Figure I.2: Local Sponsors That Believed They Were Considered Equal Partners With the Corps During the PED/Construction Phases, by Division**



The combined responses for the feasibility and PED/construction phases, by division, indicates that the Missouri River (Omaha) and the Pacific Ocean divisions had the highest percentage of sponsors that believed they were considered equal partners (with both divisions at 67 percent for 15 and 12 projects, respectively); at the other extreme, the Lower Mississippi division had the highest percentage of sponsors that believed they were considered somewhat or very subordinate (69 percent for 36 projects), as shown in figure I.3.

**Appendix I  
Sponsors' Perceptions of the Extent to  
Which They Were Equal Partners With the  
Corps**

**Figure I.3: How Sponsors Viewed Their Relationship With the Corps During Feasibility and PED/Construction Phases, by Division**



Our analysis includes the universe of projects in the feasibility and PED/construction phases that had been cost-shared.

---

# Sponsors Were Concerned About Cost-Sharing Agreements, Corps Management Reviews, and Problems Related to Land Acquisition

---

Local sponsors identified a variety of concerns about cost-sharing agreements—the FCSA and the LCA—management reviews of these agreements, and issues related to land acquisition. The FCSA and the LCA, which establish the financial and other responsibilities of the sponsor and the Corps, are negotiated by both parties and are subject to the approval of Corps management. As necessary for their projects, sponsors acquire land, obtain easements or rights of way, perform utility relocations, and manage disposal areas for dredged material.

---

## Concerns About Costs and Other Aspects of the FCSA and LCA

Sponsors' most frequently reported concerns about cost-sharing agreements were nearly all cost-related. In the case of the FCSA, the most frequently reported concern (42 of the 83 sponsors) was the total cost of the feasibility study; in the case of the LCA, it was the total project cost (45 of the 281 sponsors). Overall, the sponsors that reported concerns about the FCSA and the LCA most frequently were those that had flood control/damage projects (both general investigation and continuing authority) in the South Pacific (San Francisco) and Southwestern Divisions.

---

## Concerns About the FCSA

Of the 83 feasibility sponsors, 62 (75 percent) expressed concerns about the FCSA. Concerns about the FCSA that were generally identified most frequently were (1) total study costs, (2) changes in the feasibility study cost estimates, (3) paying the sponsor's share of costs before the study begins, (4) scope of the study, and (5) the mix of cash/in-kind product and services for the sponsor. As shown in table II.1, sponsors of general investigation flood damage projects identified problems with these top five concerns most frequently. Also, concerns were expressed most frequently in the South Pacific and Southwestern Divisions.

---

**Appendix II  
Sponsors Were Concerned About  
Cost-Sharing Agreements, Corps  
Management Reviews, and Problems  
Related to Land Acquisition**

---

**Appendix II  
Sponsors Were Concerned About  
Cost-Sharing Agreements, Corps  
Management Reviews, and Problems  
Related to Land Acquisition**

**Table II.1: Total Responses Indicating  
Any of the Top Five Concerns With the  
FCSA, by Project Type and Division**

<b>Project type</b>	<b>Lower Mississippi</b>	<b>Missouri River</b>	<b>North Atlantic</b>
General investigation, navigation	1		
General investigation, flood damage	1	3	2
General investigation, hurricane damage	1		
General investigation, shoreline or bank protection			
General investigation, water supply	1		1
General investigation, other			
Continuing authority, navigation			2
Continuing authority, flood control		2	1
<b>Total</b>	<b>4</b>	<b>5</b>	<b>6</b>

**Appendix II  
Sponsors Were Concerned About  
Cost-Sharing Agreements, Corps  
Management Reviews, and Problems  
Related to Land Acquisition**

North Central	New England	North Pacific	Ohio River	Pacific Ocean	South Atlantic	South Pacific	Southwestern	Total
		1			1	4	1	8
1			1			6	6	20
								1
					1			1
		1						3
					1			1
		2			1			5
3		2	1			5	3	17
4		6	2		4	15	10	56

**Concerns About the LCA**

Of the 281 PED/construction sponsors, 106 (38 percent) expressed concerns about the LCA. Concerns about the LCA that were generally identified most frequently were (1) total project costs; (2) lack of knowledge about what was negotiable; (3) changes in the LCA because of reviews by varying levels of Corps officials; (4) management of lands, easements, rights of way, relocations, or activities related to disposal areas for dredged material; and (5) the calculation of the cost-sharing formula. As shown in table II.2, these were expressed most frequently by sponsors in the North Central and Southwestern Divisions. Also, local sponsors of general investigation flood damage and navigation projects most frequently identified these concerns.

**Appendix II  
Sponsors Were Concerned About  
Cost-Sharing Agreements, Corps  
Management Reviews, and Problems  
Related to Land Acquisition**

**Table II.2: Total Responses Indicating  
Any of the Top Five Concerns About  
the Local Cooperation Agreement, by  
Project Type and Division**

<b>Project type</b>	<b>Lower Mississippi</b>	<b>Missouri River</b>	<b>North Atlantic</b>
General investigation, navigation	1		6
General investigation, fish and wildlife	1		
General investigation, flood damage	2	2	3
General investigation, shoreline or bank protection			2
General investigation, hydroelectric			
General investigation, recreation			
General investigation, water supply			1
General investigation, other			
Continuing authority, beach/shore protection			
Continuing authority, navigation	2		1
Continuing authority, flood control	1		
Continuing authority, snagging and clearing for flood control			
<b>Total</b>	<b>7</b>	<b>2</b>	<b>13</b>

**Appendix II  
Sponsors Were Concerned About  
Cost-Sharing Agreements, Corps  
Management Reviews, and Problems  
Related to Land Acquisition**

North Central	New England	North Pacific	Ohio River	Pacific Ocean	South Atlantic	South Pacific	Southwestern	Total
3	1				4		2	17
1								2
10		1	1	1	3	10	10	43
2					1			5
					1			1
3								3
								1
	1							1
1				1				2
1			1					5
2		1		1	4	1	3	13
1								1
24	2	2	2	3	13	11	15	94

**Sponsors Were Concerned About Management Reviews**

Sponsors also expressed concerns about management reviews of cost-sharing agreements. These included concerns about conflicts among various levels of Corps officials as well as changes in LCAS, additional work, and changes in costs—all resulting from management reviews. Sponsors also expressed concerns about the length of time required for the Corps headquarters' review of LCAS.

Of the 83 feasibility phase sponsors responding to our questionnaire, 62 (75 percent) expressed concerns about the FCSA. Of those, 12 (19 percent) cited concerns with conflicts among headquarters, division, or district levels of the Corps during agreement negotiations, as summarized in table II.3.

**Appendix II  
Sponsors Were Concerned About  
Cost-Sharing Agreements, Corps  
Management Reviews, and Problems  
Related to Land Acquisition**

**Table II.3: Projects of 12 Sponsors  
Concerned About Intra-Corps Conflicts  
During Negotiations of the FCSA, by  
Division**

<b>Corps division</b>	<b>Total projects</b>	<b>Continuing authority projects</b>	<b>General Investigation projects</b>
Lower Mississippi	1		1 flood damage
Missouri River	1	1 flood control	
North Pacific	2	1 navigation and 1 flood control	
South Atlantic	1		1 other
South Pacific	3		3 flood damage
Southwestern	4	1 flood control	2 flood damage and 1 navigation

Of the 281 PED and construction phase sponsors responding to our questionnaire, 106 (38 percent) expressed concerns about the LCA. Of those, 40 cited problems related to changes in that agreement because of reviews by varying levels of Corps officials. As shown in table II.4, such problems were identified most frequently by sponsors of general investigation projects, with the largest number of such sponsors located in the North Central Division.

**Table II.4: Projects of 40 Sponsors  
Concerned About Changes in LCAs  
Because of Reviews by Varying Levels  
of Corps Officials**

<b>Corps division</b>	<b>Total projects</b>	<b>Continuing authority projects</b>	<b>General Investigation projects</b>
Lower Mississippi	2		1 fish and wildlife and 1 flood damage
Missouri River	2		2 flood damage
New England	1		1 other
North Atlantic	8		4 navigation, 2 flood damage, 1 shoreline protection, and 1 water supply
North Central	14	1 flood control 1 snagging and clearing for flood control	2 navigation, 6 flood damage, 2 shoreline protection, 1 recreation, and 1 fish and wildlife
South Atlantic	2	1 flood control	1 navigation
South Pacific	5		5 flood damage
Southwestern	6	1 flood control	1 navigation and 4 flood damage

We also looked at additional work requirements and changes in subsequent cost estimates caused by the Corps' headquarters reviews. We

**Appendix II  
Sponsors Were Concerned About  
Cost-Sharing Agreements, Corps  
Management Reviews, and Problems  
Related to Land Acquisition**

noted that five local sponsors in the feasibility phase identified this as a problem. Table II.5 summarizes the project type and location of these five local sponsors.

**Table II.5: Projects of Five Sponsors Concerned About Added Work and Cost Changes in the Feasibility Phase, by Division**

Corps division	Total projects	Continuing authority projects	General investigation projects
Lower Mississippi	1		1 flood damage
North Pacific	1		1 navigation
South Pacific	2		2 flood damage
Southwestern	1	1 flood control	

As summarized in table II.6, 36 sponsors indicated concerns about the length of time required for Corps headquarters review of LCAs. Most such concerns were expressed by sponsors with projects in the North Central, South Pacific, and North Atlantic (New York City) Divisions. Corps officials told us that sponsors, in responding to our questionnaire, may not have been aware that the headquarters review sometimes included a review of other reports, such as feasibility or formulation reports, in addition to the review of the LCA.

**Table II.6: Projects of 36 Sponsors Concerned About Length of Time for Corps Headquarters Review of Local Cooperation Agreement**

Corps division	Total projects	Continuing authority projects	General investigation projects
Lower Mississippi	1	1 flood control	
New England	2	1 beach/shore protection	1 other
North Atlantic	6		3 navigation, 2 flood damage, 1 shoreline protection, and 1 recreation
North Central	11	1 beach/shore protection, 1 flood control, and 1 snagging and clearing for flood control	1 navigation, 4 flood damage, and 2 shoreline protection
South Atlantic	4	1 flood control	1 navigation, 1 flood damage, and 1 hydropower
South Pacific	7		7 flood damage
Southwestern	5	1 flood control	4 flood damage

---

**Appendix II  
Sponsors Were Concerned About  
Cost-Sharing Agreements, Corps  
Management Reviews, and Problems  
Related to Land Acquisition**

---

**Sponsors Were  
Concerned About  
Problems Related to  
Land Acquisition**

Sponsors also expressed concerns about problems related to land acquisition for their projects. Their most frequent problems were (1) the ability/inability to acquire lands prior to the signing of the LCA, (2) unrealistic acquisition schedules, (3) the Corps' staff failure to identify right-of-way requirements in sufficient time to acquire land for the construction start-up dates, (4) difficulty in locating and acquiring disposal sites, and (5) unclear or inconsistent land title or easement requirements.

As shown in table II.7, sponsors of general investigation flood damage and continuing authority flood control projects identified problems with these top five concerns most frequently. Concerns were expressed most frequently in the North Central, South Atlantic, and Southwestern Divisions.

---

**Appendix II  
Sponsors Were Concerned About  
Cost-Sharing Agreements, Corps  
Management Reviews, and Problems  
Related to Land Acquisition**

---

**Appendix II  
Sponsors Were Concerned About  
Cost-Sharing Agreements, Corps  
Management Reviews, and Problems  
Related to Land Acquisition**

**Table II.7: Total Responses Indicating  
Any of the Top Five Concerns About  
Problems Associated With Land  
Acquisition, by Project Type and  
Division**

	<b>Lower Mississippi</b>	<b>Missouri River</b>	<b>North Atlantic</b>
General investigation, navigation	1		3
General investigation, fish and wildlife			
General investigation, flood damage	2		3
General investigation, hurricane damage			
General investigation, shoreline or bank protection			1
General investigation, hydroelectric			
Continuing authority, beach/shore protection			
Continuing authority, navigation	1		2
Continuing authority, flood control	1		1
Continuing authority, snagging and clearing for flood control			
<b>Total</b>	<b>5</b>		<b>10</b>

**Appendix II  
Sponsors Were Concerned About  
Cost-Sharing Agreements, Corps  
Management Reviews, and Problems  
Related to Land Acquisition**

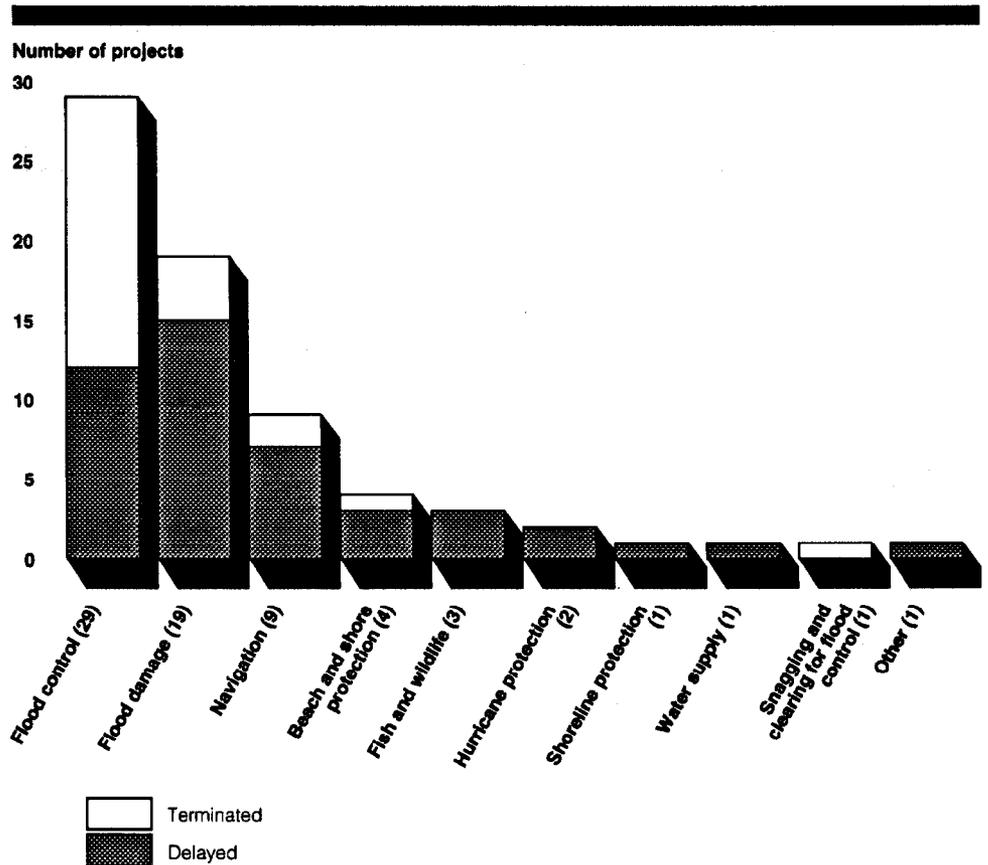
North Central	New England	North Pacific	Ohio River	Pacific Ocean	South Atlantic	South Pacific	Southwestern	Total
1					4		1	10
1								1
7				1	3	9	8	33
1								1
								1
					1			1
				1				1
			1		1			5
2			3	1	4	1	3	16
1								1
13			4	3	13	10	12	70

# Projects Delayed or Terminated Because the Local Sponsor Lacked Funding Capability

Of the 455 projects represented in the responses to our questionnaire, 70, or about 15 percent, were delayed or terminated because the local sponsor lacked the funding necessary to pay for its share of the project costs. More specifically, 45 of the projects were delayed and 25 were terminated.

As shown in figure III.1, 10 types of projects were delayed or terminated. The single largest category was flood control, and the second largest was flood damage. Table III.1 provides further detail, including, for each project type, the number of general investigation and continuing authority projects that were delayed or terminated.

**Figure III.1: Types of Projects Delayed or Terminated for Lack of Sponsor Funds**



**Appendix III  
Projects Delayed or Terminated Because the  
Local Sponsor Lacked Funding Capability**

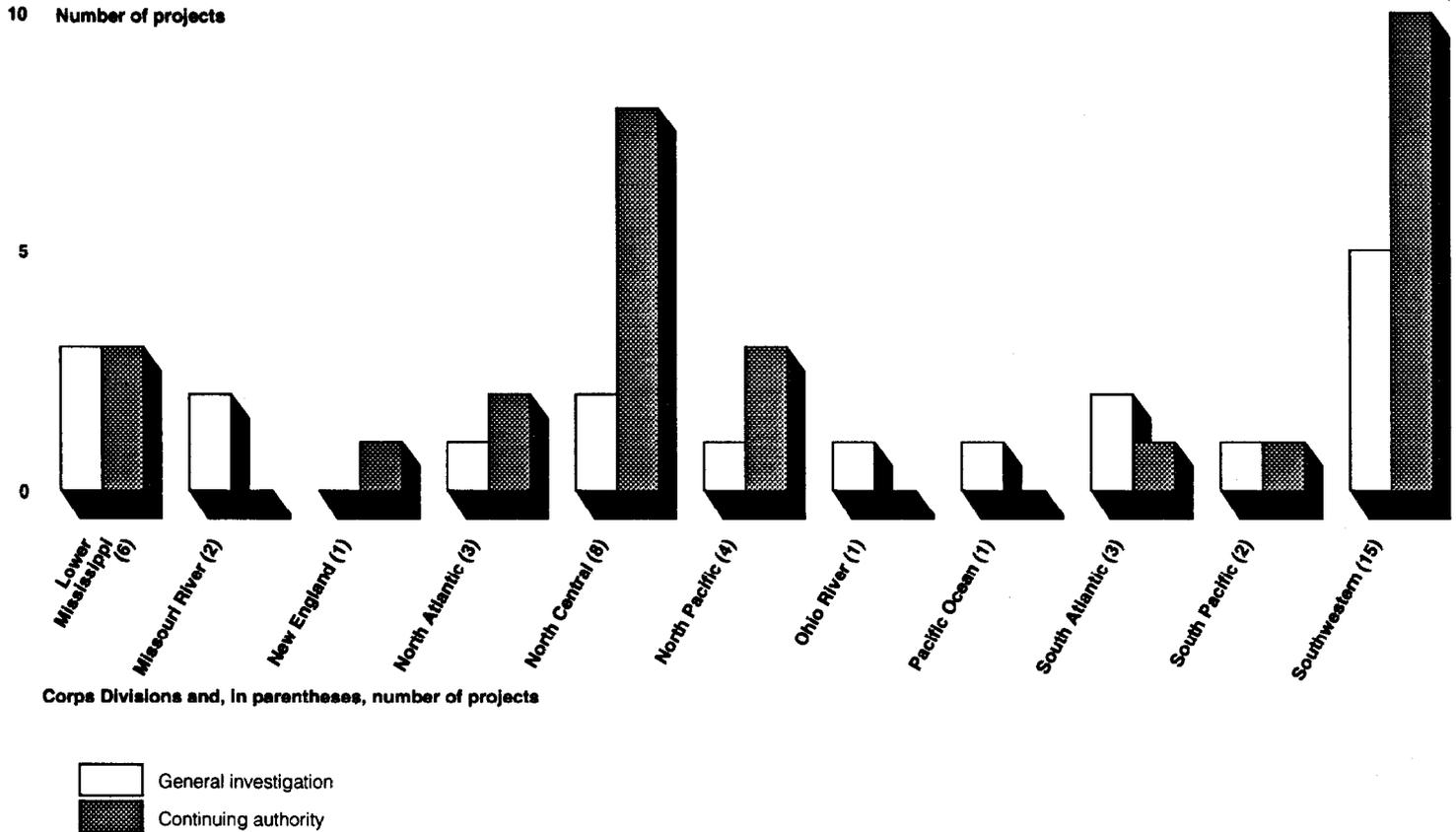
**Table III.1: Types of Projects Delayed or Terminated for Lack of Local Sponsor Funds, by Funding Type**

<b>Type of project</b>	<b>Total number delayed or terminated</b>	<b>Number delayed, by funding type</b>	<b>Number terminated, by funding type</b>
Flood control	29	12 continuing authority	17 continuing authority
Flood damage	19	15 general investigation	4 general investigation
Navigation	9	5 general investigation 2 continuing authority	2 continuing authority
Beach and shore protection	4	3 continuing authority	1 continuing authority
Fish and wildlife	3	3 general investigation	
Hurricane protection	2	2 general investigation	
Shoreline protection	1	1 general investigation	
Water supply	1	1 general investigation	
Snagging and clearing for flood control	1		1 continuing authority
Other	1	1 general investigation	
<b>Total</b>	<b>70</b>	<b>17 continuing authority and 28 general investigation</b>	<b>21 continuing authority and 4 general investigation</b>

Figure III.2 shows the distribution among Corps divisions of the flood damage and flood control projects that were delayed or terminated and the distribution of the two funding types. While each of the Corps' 11 divisions had at least one delayed or terminated project, the Southwestern and North Central Divisions had the highest number. The Southwestern Division had the highest number of flood control and flood damage projects in both funding categories—general investigation and continuing authority.

**Appendix III  
Projects Delayed or Terminated Because the  
Local Sponsor Lacked Funding Capability**

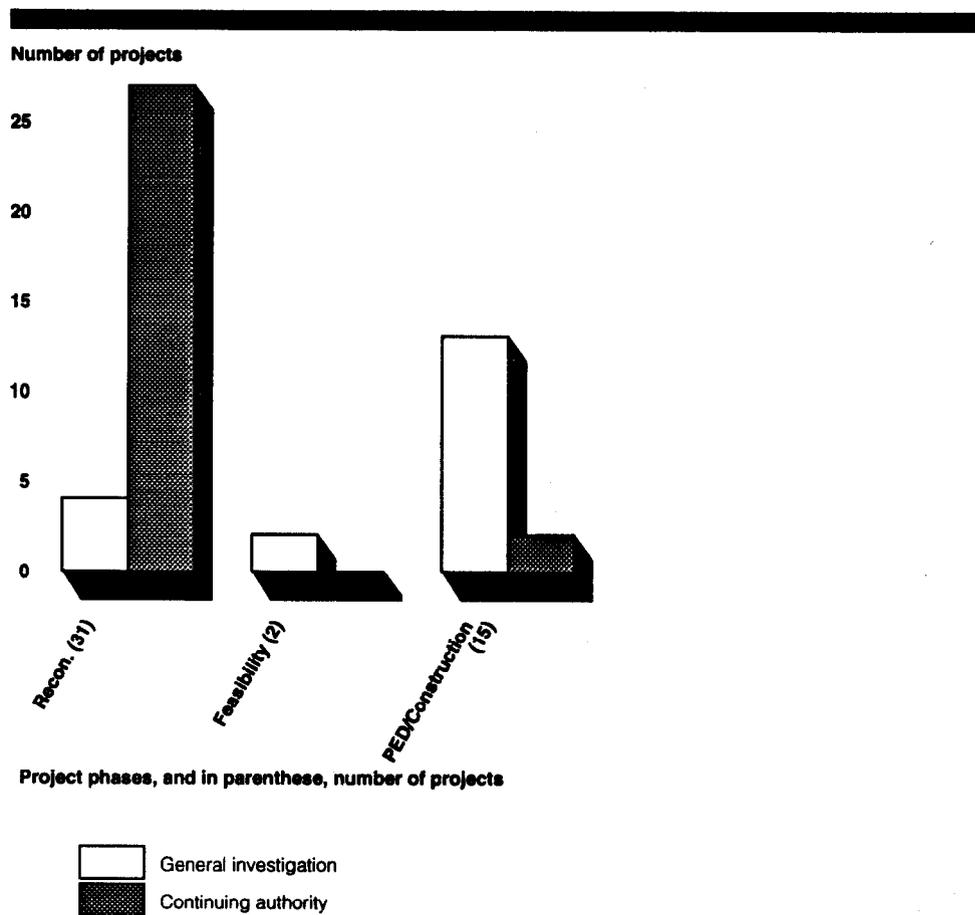
**Figure III.2: Flood Damage/Control Projects Delayed or Terminated for Lack of Sponsor Funds, by Division and Funding Type**



As shown in figure III.3, the most significant category of delayed or terminated flood-related projects was continuing authority projects in the reconnaissance phase.

**Appendix III  
Projects Delayed or Terminated Because the  
Local Sponsor Lacked Funding Capability**

**Figure III.3: Flood Damage/Control  
Projects Delayed or Terminated, by  
Phase and Funding Type**



# Methodology Used in Identifying Characteristics of Successful Corps and Local Sponsor Relationships

This appendix describes our methodology for determining how specific characteristics of local sponsors and the Corps of Engineers were associated with two separate outcomes—how satisfied or dissatisfied the local sponsor was with its relationship with the Corps (for the reconnaissance phase) and if the sponsor felt like an equal or subordinate partner with the Corps during the project (for the feasibility; preconstruction, engineering, and design; and construction phases). The likelihood of a positive outcome was defined as the odds that the local sponsor was either extremely or generally satisfied with the relationship or that the local sponsor felt it was an equal partner with the Corps during the phases of the project.

The following example shows how our methodology examines the association between a single characteristic of the sponsor's relationship with the Corps and whether the sponsor feels like an equal partner with the Corps. For this illustration we selected the adequacy of the information the Corps provided to the sponsor on the project's cost. We compared those sponsors that felt the Corps provided "very adequate" or "generally adequate" information on the project's cost for the sponsors needs with those that felt the Corps provided "neither adequate nor inadequate", "generally inadequate", or "very inadequate" information on the cost.<sup>1</sup>

Of the sponsors that felt the Corps provided very or generally adequate information, 94 felt that they had an equal relationship with the Corps and 108 felt subordinate. The odds of an equal partnership for those sponsors that felt the Corps provided very or generally adequate information on the project's cost is 0.870 (94 divided by 108). This means that for every 1,000 sponsors that felt they were subordinate in the partnership with the Corps, 870 felt that they were equal. For those sponsors that felt the Corps provided less adequate information on the cost of the project, nine felt they had an equal partnership and 56 felt subordinate. The odds of an equal partnership for those sponsors that felt the Corps provided neither adequate nor inadequate, generally inadequate, or very inadequate information on the project's cost is 0.161 (9 divided by 56). This means that for every 1,000 sponsors that felt they were subordinate in the partnership with the Corps, 161 felt they were equal.

To compare our two odds, we divided one (0.870) by the other (0.161) to obtain the odds ratio of 5.42. This ratio indicates the odds of a sponsor feeling like an equal partner with the Corps for those that felt the Corps

<sup>1</sup>Six sponsors did not respond to this question. These cases were not included in the analyses.

**Appendix IV  
Methodology Used in Identifying  
Characteristics of Successful Corps and  
Local Sponsor Relationships**

provided very adequate or generally adequate information on the cost of the project was 542 percent greater than the odds of sponsors that felt they had received less adequate information from the Corps.<sup>2</sup> (See table IV.1.)

**Table IV.1: Crosstabulation Between Adequacy of Information Provided by Corps on Cost of Project and Local Sponsor's Feeling That It Was an Equal or Subordinate Partner With the Corps**

	Adequacy of Information provided by Corps on cost of project	
	Very adequate or generally adequate	Neither adequate nor inadequate or generally inadequate or very inadequate
Local sponsor's feeling that it was an equal or subordinate partner with the Corps		
Equal partner	94	9
Somewhat subordinate or very subordinate	108	56

Notes: Odds:  $94/108=0.870370$   $9/56=0.160714$   
Odds ratio:  $0.870370/0.160714=5.415645$

An odds ratio of 1.00 suggests that sponsors with or without a particular characteristic are equally likely to believe that they were in an equal partnership. However, a substantially larger odds ratio, such as 5.42, suggests a strong association between the characteristic with a belief in an equal partnership.

To decide whether a statistically significant association exists between characteristics and an equal partnership, we consider the probability of our odds ratio's occurring under certain assumptions. First, we assume that there is no association between the characteristic and an equal partnership. We then compute the probability of observing a certain odds ratio in our study, assuming that (1) the local sponsors in our survey are a simple random sample of some larger population of sponsors and (2) that no association exists in this larger population. If we find that the probability of finding certain odds ratios is small (since we observed a large odds ratio) under the assumption that there is no association in all possible cases, we can conclude that we have observed a statistically significant relationship. For our work we have chosen a probability of 0.05 as our measure of statistical significance—a common standard. Thus, if we compute probabilities of 0.05 or smaller for our observed odds ratio, we can conclude that we have observed a statistically significant relationship since the probability of observing such a relationship purely by chance in repeated surveys of this type is only 0.05.

<sup>2</sup>Note that odds are equal to the ratio of the probability of having an equal partnership to the probability of having a subordinate partnership for a given characteristic.

**Appendix IV  
Methodology Used in Identifying  
Characteristics of Successful Corps and  
Local Sponsor Relationships**

Our odds ratio of 5.42 indicates a linear association between adequate information and the sponsor's feelings of an equal partnership. The probability of obtaining this odds ratio when the adequacy of information is not associated with the sponsor's feelings of an equal partnership is less than 0.0005. Since 0.0005 is less than 0.05, we conclude there is a statistically significant association between the characteristic and the sponsor's feelings of an equal partnership. (See table IV.2.) That is, we conclude the odds ratio in the population is not exactly equal to 1.00. However, the odds ratio of 5.42 is unadjusted and does not take into account the association of the sponsor's feelings of an equal partnership with other characteristics. Using the same technique, we calculate the unadjusted association for the local sponsor's impact on the project design and feelings of an equal partnership with the Corps. In this case the odds ratio is that a sponsor that has very great or great impact on the design of the project will be 4.62 times as likely to feel like an equal partner than a sponsor that has moderate, some, or little or no impact on the design. Again, we also test for statistical significance. We find the probability of obtaining these odds when there is no association is less than 0.0005 and again conclude there is a statistically significant association.

**Table IV.2: Adjusted and Unadjusted Associations of the Sponsor's Feeling Like an Equal Partner With the Corps by Two Sponsor Characteristics in the PED Phase**

Relationship of characteristic to reference category (RC) <sup>a</sup>	Adjusted associations		Unadjusted associations	
	Odds ratio	Probability (p-value)	Odds ratio	Probability (p-value)
Adequacy of the information provided by the Corps on the cost of the project (RC=neither adequate nor inadequate, generally inadequate, or very inadequate)				
Very or generally adequate	2.95	0.01	5.42	<0.0005
Local sponsor's impact on the project design (RC=moderate, some, or little or no impact)				
Very great impact or great impact	<sup>a</sup>	<sup>a</sup>	4.62	<0.0005

<sup>a</sup>Only those independent variables that are significant at the 0.05 level are listed.

To determine the association of each characteristic in conjunction with others, we performed a stepwise logistic regression analysis and calculated an adjusted odds ratio for each characteristic. Whereas the unadjusted odds ratio represents the association with an equal partnership of a single characteristic operating in isolation, the adjusted odds ratio represents the association of a single characteristic with the belief in an equal partnership, taking into account other characteristics. In the process

---

**Appendix IV  
Methodology Used in Identifying  
Characteristics of Successful Corps and  
Local Sponsor Relationships**

---

of stepwise logistic regression, the probabilities of finding the odds in the absence of an association is also calculated. In the first example in table IV.2, the probability is 0.01 and the odds ratio is 2.95. As the software (SAS in this case) attempts to obtain the best solution of adjusted associations, it only includes those variables that are statistically significant and dispenses with the rest. Hence, no adjusted values are given in the second example of table IV.2, and only the odds of associations that are found to be statistically significant are presented in all tables.

We obtained an adjusted odds ratio for local sponsors that felt they had received very adequate or generally adequate information on the costs of the project. The adjusted odds ratio for these sponsors was 2.95. Thus, the odds of feeling like an equal partner with the Corps was 195 percent greater among those sponsors that felt they received very or generally adequate information even after other characteristics were considered. The adjusted odds ratio of 2.95 indicates an association between adequate information and an equal partnership. The probability of obtaining an odds ratio this large when there is no association is 0.01. Since 0.01 is less than 0.05, we conclude there is a statistically significant association between the characteristic and belief in an equal partnership while taking other characteristics into consideration.

The association between the sponsor's impact on the project's design and feelings of being an equal partner with the Corps was not found to be statistically significant. Because the software removed this variable from its calculations, we cannot present the odds ratio or the probability, and therefore we have used "a" as a place holder. While we do not know the adjusted associations for this or other variables that are not significant, we do present their unadjusted associations to show the reader all variables that were entered in the adjusted calculations.

In tables IV.3 through IV.6, we show adjusted and unadjusted odds ratios and the probabilities of obtaining our odds ratios in relation to two different dependent variables. For the reconnaissance phase, we are using the local sponsor's satisfaction with the relationship with the Corps. For the feasibility, PED, and construction phases, we are using the local sponsor's feeling like an equal or subordinate partner with the Corps.

For a number of reasons, we have not presented all statistics for all characteristics. No adjusted odds ratios or probabilities were presented for characteristics in the reconnaissance phase because of the small number of cases in this phase and the high level of sponsor satisfaction

**Appendix IV  
Methodology Used in Identifying  
Characteristics of Successful Corps and  
Local Sponsor Relationships**

with the Corps. No unadjusted odds ratio is presented for two characteristics in the reconnaissance phase because the distribution of the data would have required divisions by zero and therefore could not be calculated. Many adjusted odds ratios and probabilities in the other phases are not presented because they were not statistically significant.

The number of cases shown for the adjusted analyses is different than the number of cases shown in the unadjusted analyses because of the way nonrespondents are handled in logistic regression. If a local sponsor did not respond to any of the questions that are included in the model, then that sponsor's answers are deleted for all questions in the model. Only those sponsors that responded to all questions in the model are analyzed.

**Table IV.3: Adjusted and Unadjusted Associations of Satisfaction With the Relationship With the Corps, by Selected Sponsor Characteristics in the Reconnaissance Phase**

Relationship of characteristic with reference category (RC)	Adjusted associations		Unadjusted associations	
	Odds Ratio	Probability (p-value)	Odds ratio	Probability (p-value)
Number of activities local sponsor actively involved in (RC=0)				
1 or 2	a	a	4.80	0.01
3, 4, 5, or 6	a	a	8.99	0.01
Local sponsor's impact on key Corps decisions (RC=moderate, some, or no impact)				
Very great or great impact	a	a	b	b
Prompt answers by Corps to local sponsor's questions (RC=about half yes and half no, Generally no, or always no)				
Always yes or generally yes	a	a	b	b
Direct or substantive answers by Corps to local sponsor's questions (RC=about half yes and half no, generally no, or always no)				
Always yes or generally yes	a	a	64.94	<0.0005

Note: The total number of cases in the unadjusted analysis is 89.

<sup>a</sup>No adjusted odds ratios or probabilities are presented for characteristics in the reconnaissance phase because of the small number of cases in this phase (89) and the high level of sponsor satisfaction with the Corps.

<sup>b</sup>Because the distribution of the data, calculation of the odds ratio would have resulted in a division by zero and therefore could not be calculated.

**Appendix IV  
Methodology Used in Identifying  
Characteristics of Successful Corps and  
Local Sponsor Relationships**

**Table IV.4: Adjusted and Unadjusted Associations of Local Sponsor's Feeling Like an Equal or Subordinate Partner With the Corps, by Selected Sponsor Characteristics in the Feasibility Phase**

Relationship of characteristic with reference category (RC)	Adjusted associations		Unadjusted associations	
	Odds ratio	Probability (p-value)	Odds ratio	Probability (p-value)
Number of activities local sponsor actively involved in requiring financial involvement (RC=0 or 1)				
2	a	a	3.23	0.029
Local sponsor's impact on key Corps decisions (RC=moderate, some, or little or no impact)				
Very great or great impact	a	a	2.64	0.037
Local sponsor concern with the feasibility cost sharing agreement (RC=moderate, some, or little or no concern)				
Very great or great concern	99.75	0.0001	3.49	0.018
Effort by Corps to meet local sponsor concerns with the feasibility cost sharing agreement (RC=moderate, some, or little or no effect)				
Always yes or generally yes	10.50	0.0036	10.53	<0.0005

Note: The total number of cases in the adjusted analysis is 82. The total number of cases in the unadjusted analysis is 83.

\*We used a stepwise logistic regression procedure. Only those independent variables that are significant at the 0.05 level are listed.

**Table IV.5: Adjusted and Unadjusted Associations of Local Sponsor's Feeling Like an Equal or Subordinate Partner With the Corps, by Selected Sponsor Characteristics in the PED Phase**

Relationship of characteristic with reference category (RC)	Adjusted associations		Unadjusted associations	
	Odds ratio	Probability (p-value)	Odds ratio	Probability (p-value)
Local sponsor's impact on key Corps decisions (RC=moderate, some, or little or no impact)				
Very great or great impact	a	a	4.40	<0.0005
Prompt answers by Corps to local questions (RC=about half yes and half no, generally no, or always no)				
Always yes or generally yes	a	a	6.47	<0.0005
Direct or substantive answers by Corps to local sponsor questions (RC=about half yes and half no, generally no or always no)				
Always yes or generally yes	a	a	4.92	<0.0005
Information provided by the Corps consistent or inconsistent with final decisions or policies of the Corps (RC=neither consistent nor inconsistent, generally inconsistent, or very inconsistent)				

(continued)

**Appendix IV  
Methodology Used in Identifying  
Characteristics of Successful Corps and  
Local Sponsor Relationships**

<b>Relationship of characteristic with reference category (RC)</b>	<b>Adjusted associations</b>		<b>Unadjusted associations</b>	
	<b>Odds ratio</b>	<b>Probability (p-value)</b>	<b>Odds ratio</b>	<b>Probability (p-value)</b>
Very consistent or generally consistent	a	a	5.80	<0.0005
Assistance of the life cycle project manager in developing good working relationship (RC=moderate, some, or little or no assistance)				
Very great assistance or great assistance	a	a	5.26	<0.0005
Adequacy of the information provided by the Corps in the cost of the project (RC=neither adequate nor inadequate, generally inadequate, or very inadequate)				
Very adequate or generally adequate	2.95	0.01	5.42	<0.0005
Local sponsor's impact on the project design (RC=moderate, some, or little or no impact)				
Very great impact or great impact	a	a	4.62	<0.0005
Local sponsor's awareness of design alternatives (RC=moderate, some, or little or no awareness)				
Very great awareness or great awareness	3.07	0.01	7.84	<0.0005
Extent of consultation with the local sponsor on design alternatives (RC=moderate, some, or little or no extent)				
Very great extent or great extent	a	a	6.79	<0.0005
Corps openness to design alternatives proposed by the local sponsor (RC=moderate, somewhat, or a little or not at all open)				
Extremely open or very open	7.73	0.0001	12.73	<0.0005
Corps openness or reluctance in sharing technical information on design with local sponsor (RC=neither open nor reluctant, generally reluctant, or very reluctant)				
Very open or generally open	a	a	7.02	<0.0005

Note: The total number of cases in the adjusted analysis is 254. The total number of cases in the unadjusted analysis is 281.

\*Only those independent variables that are significant at the 0.05 level are listed.

**Appendix IV  
Methodology Used in Identifying  
Characteristics of Successful Corps and  
Local Sponsor Relationships**

**Table IV.6: Adjusted and Unadjusted Associations of Local Sponsor's Feeling Like an Equal or Subordinate Partner With the Corps, by Selected Sponsor Characteristics in the Construction Phase**

Relationship of characteristic with reference category (RC)	Adjusted association		Unadjusted association	
	Odds ratio	Probability (p-value)	Odds ratio	Probability (p-value)
Number of issues causing problems in the negotiation of the local cooperation agreement (RC=0)	1.36	0.04		
1, 2, or 3	a	a	3.33	<0.0005
4, 5, 6, or 7	a	a	11.333	<0.0005
Local sponsor's input has any impact on key Corps decisions (RC=moderate, some, or little or no impact, or no sponsor input)				
Very great or great impact	6.69	0.0001	6.89	<0.0005
The extent to which the project meets the local sponsor's needs (RC=moderate, some or little or no extent)				
Very great extent or great extent	b	b	4.06	0.02
Adequacy of the information provided by the Corps on the cost of construction (RC=neither adequate nor inadequate, generally inadequate, or very inadequate)				
Very adequate or generally adequate	b	b	3.37	0.02
Has cost accounting begun? (RC=no)				
Yes	b	b	2.27	0.04
The extent to which the Corps identified cost accounting standards (RC=moderate, some, or little or no extent)				
Very great extent or great extent	b	b	2.80	0.02

Notes: The total number of cases in the adjusted analysis is 114. The total number of cases in the unadjusted analysis is 134.

<sup>a</sup>To avoid empty cells in the crosstab tables, the number of issues was collapsed into three categories for the unadjusted analysis. In the adjusted analysis, the number of issues was continuous from zero to seven.

<sup>b</sup>Only those independent variables that are significant at the 0.05 level are listed.

---

# Major Contributors to This Report

---

**Resources,  
Community, and  
Economic  
Development  
Division, Washington,  
D.C.**

**Leo E. Ganster, Assistant Director  
Jonathan T. Bachman, Senior Social Science Analyst**

---

**Seattle Regional  
Office**

**Elizabeth J. L. Reid, Evaluator-in-Charge  
Desiree W. Whipple, Reports Analyst**

---

---

### **Ordering Information**

The first copy of each GAO report and testimony is free. Additional copies are \$2 each. Orders should be sent to the following address, accompanied by a check or money order made out to the Superintendent of Documents, when necessary. Orders for 100 or more copies to be mailed to a single address are discounted 25 percent.

**Orders by mail:**

**U.S. General Accounting Office  
P.O. Box 6015  
Gaithersburg, MD 20884-6015**

**or visit:**

**Room 1000  
700 4th St. NW (corner of 4th and G Sts. NW)  
U.S. General Accounting Office  
Washington, DC**

**Orders may also be placed by calling (202) 512-6000  
or by using fax number (301) 258-4066.**

---

**United States  
General Accounting Office  
Washington, D.C. 20548**

**Official Business  
Penalty for Private Use \$300**

**First-Class Mail  
Postage & Fees Paid  
GAO  
Permit No. G100**

---