Practices and Problems in Development and Use of Project Study Plans

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Introduction

The Institute For Water Resources recently conducted through its contractor, Planning and Management Consultants, Ltd., the survey; Assessment of Acceptability and use of Project Study Plans (PSP survey). The survey was conducted in two phases. The first phase was a written questionnaire with both multiple choice and open ended questions. The second phase was a telephone interview with open ended questions. The open ended design of the survey instruments solicited a profusion of issues.

This think piece discusses the issues raised in the PSP survey. The issues are analyzed and alternative policies and procedures are suggested to address the concerns expressed by the districts. This paper has no imprimatur from any office or person. The author does not advocate any position or suggestion, but simply places some ideas and observations on the table in the hope of spurring a discussion. This paper should be able to act as a beginning focus point for that discussion. Copies of the PSP survey results are available.

Please provide you ideas, comments, concerns or requests to Keith Hofseth, CEWRC-IWR-R, 703-428-6468.

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Project Study Plan
as Contract

"We need to consider the PSP as a contract, that the sponsor, district, MSC and HQUSACE have all agreed upon, prior to execution of the Feasibility Cost Sharing Agreement." - *Major General Genega*, 28-Dec-94

The concept of the PSP as a contract has not been fully realized. The intent was to use the PSP as a vehicle for corporate agreement defining the feasibility study prior to execution. This was an effort to shorten the review time by shifting review of the feasibility study from what efforts were undertaken, to whether the agreed upon studies were accomplished. The PSP was to provide the basis from which changes could be assessed and agreement reached among all study participants. The PSP was to record all agreements reached concerning the conduct of the study and serve as a basis for determining that the draft feasibility report has been developed in accordance with established procedures and previous agreements. Subsequent to the release of the PSP guidance, actions taken to further shorten the feasibility report schedule where made by both Policy and Planning Divisions.

Policy Memorandum No. 2 dated 6/April/1995, promulgated policy review procedures for civil works feasibility studies. As outlined, the procedures allow for a Project Selection Briefing (PSB) "when the district is prepared to select the plan around which the draft feasibility report will be written." During the PSB policy issues will be identified and addressed by the review team. The PSB will result in a Planning Guidance Memorandum (PGM) stating the issues raised at the PSB. The districts will respond to the issues raised when drafting the feasibility report. "The PGM will be the 'contract' between the reporting officers and HQUSACE for completing the final Feasibility Report."

The procedures outlined for review and processing of the feasibility study by Policy Memorandum No. 2 do not mention the PSP. As outlined, the PSP is given no official role in the review process. Moreover, it is explicitly superseded as the "contract" by the PGM.

Planning Guidance Letter 95-02 (PGL 95-02), dated 25/July/1995, promulgates an Alternative Review Process. This process calls for an Alternative Formulation Briefing (AFB) after the district has tentatively identified the NED and selected plans, but prior to drafting the feasibility report. PGL 95-02 states; "Preconference materials include pertinent information such as key assumptions, base conditions, without project conditions, alternative plans, economic and cost data, environmental considerations, etc., and include how concerns identified in the reconnaissance guidance memorandum and project study plan were addressed." Issues raised during review of the preconference materials and resolutions arrived at during the AFB are to be documented in the AFB-Guidance Memorandum.

The Alternative Review Process does not explicitly define the role of the PSP in review of the preconference materials. Nor is the AFB-Guidance Memorandum incorporated into the PSP to be used for review of the draft or final feasibility report. The PSP becomes subordinate to the AFB-Guidance Memorandum.

Currently, CECW-A is drafting an Engineering Circular to incorporate Policy Memorandum No. 02. The current draft of EC 1165-2-203 (Policy Review and Analysis-Implementation of Technical and Policy Compliance Review, XX July 1996), adopts the Alternative Formulation Briefing language of PGL 95-02 to describe the review process prior to writing the draft feasibility report. It retains the Planning Guidance Memorandum language of the Policy Memorandum No. 02 to describe the documentation of issues and resolutions. The draft EC does not require the PSP to be used in review, nor describe how it might be used. In outlining the policy compliance review processing procedures, the EC states "Transmittal letters forwarding decision documents ....[will also include] Copies of the reconnaissance guidance memorandum(RGM) and PSP or project guidance memorandum (PGM) and other guidance memorandums ... will be provided to CECW-AR." Requiring the "PSP *or* project guidance memorandum" (italics added) seems to carry forward the concept from Policy Guidance Memorandum No. 02, of the PGM becoming the "contract" and superseding the PSP in the review process.

The review process does not require the PSP to be used as a review tool. Neither the AFB-Guidance Memorandum nor the PGM are incorporated into the PSP as modifications to the "contract." This results in the PSP losing its function as the controlling document for tracking and review of the feasibility study and report.

Districts are not required to use either the PSB or the AFB methods. They may follow traditional processing by submitting the draft feasibility report for review. According to EC 1105-2-208, the district is required to submit the current PSP, updated to reflect any modification made during the study, with the draft feasibility report. This however is not being done by the
districts nor required by the review team.

Planning Guidance Letter 96-01, dated 12 October 1995, Reducing the Cost and Duration of Feasibility Studies, deals in part with incorporating changes in procedural requirement made after a cost shared study has commenced. It states; "The PSP, including the documented changes, will be used in the technical and policy review processes." This PGL reiterates the PSP as a review tool, but does not reflect current practice.

In addition to these structural problems are problems in practice. Review team members are charged with assuring compliance to law and policy. In this light, shifting "review of the feasibility study from what efforts were undertaken, to whether the agreed upon studies were accomplished" cannot take place without a process which insures compliance. Currently, many PSP's are not of sufficient quality to be used by the review

team as the "contract." This stems from either incomplete PSP's being approved by HQ and/or PSP's not being updated as changes are made during the study by the districts. This has resulted in the review team using the traditional method of reviewing "what efforts were undertaken" and developing a PGM to guide the remainder of the study and the final review.

In a survey of district personnel conducted by IWR (PSP survey) , the districts complained that HQUSACE was inconsistent in their requirements for PSP's. This complaint has merit. A review of certified PSP's shows the approval process to be inconsistent in its demands for comprehensive PSP's. While the angst expressed by the districts may indicate HQ review to be too fastidious, the problem stems from certification of PSP's of substandard quality.

PSP's of substandard quality cannot be used to shift the review to "whether the agreed upon studies were accomplished." Nor can these PSP be used by the districts as effective planning tools. This may partially explain why 45 percent of the personnel responding to the PSP survey disagreed with the statement; "PSP's are followed closely during feasibility studies."

The PSP guidance, Policy Memorandum No. 2, Planning Guidance Letter 95-02 and EC 1165-2-203 all attempt to shorten the feasibility report processing time by insuring planning and policy issues are identified and resolved prior to review of the draft feasibility report. They do not define a consistent role for the PSP in the study process. The following are actions are suggested for improving the process.

Suggested actions:

Planning:

1.) To establish consistent feedback to the field, establish with a single team to certify all PSP's. Separate teams could be established for each project purpose if desired.
2.) Enforce EC 1105-2-208 as the written criteria for PSP certification. This will be facilitated with completion of the PSP manual and dissemination of example PSP's on a Corps web site.
3.) Explicitly incorporate the PSP into the Alternative Review Process by requiring the current, updated PSP be required in the preconference materials. Require the review to be structured around the updated PSP. This would take the form of certifying individual task in the PSP as either complete and satisfactory or not.
4.) If during review, needed changes to the PSP are identified, either because the certified PSP was incomplete or because new information necessitates change, require the AFB-Guidance Memorandum documenting these changes be an addendum to the PSP.

5.) For feasibility review, both draft and final, require the current PSP with all changes and addendums be submitted with the draft feasibility report.

Policy:

1.) To confirm the PSP as the controlling document for the execution and review of the feasibility study, explicitly incorporate the PSP into EC 1165-2-203 as the standard for the review and revoke those parts of Policy Memorandum No. 02 dealing with the feasibility study review process.

2.) Require the updated PSP be submitted with any request for document review, and the review to be structured around the updated PSP. This would take the form of certifying individual task in the PSP as either complete and satisfactory or not. If work beyond the scope of the PSP is needed to show compliance with policy or law, require the PGM (or RGM) to be a modifications to the PSP.

3.) Establish a feedback mechanism to notify Planning when a PSP, as amended by the alternative review process fails to provide the review team with a certifiable feasibility report. This feedback should include an evaluation of how the unsatisfactory performance may have been prevented, if possible.

Processing Policy Issues Through the PSP

The project study plan serves as a vehicle for policy issue resolution. Districts articulate the specific alternatives to be studied, the assumptions to be made and the techniques to be used in the feasibility study. Abbreviated methods or simplifying assumptions contrary to current planning practice or stated policy are suggested. In this process, the PSP is a request for policy waiver on these issues. When policy issues are not resolvable at Headquarters, EC 1105-2-208 states; "The ASA(CW) will not participate in the review and approval of PSP's unless it is determined by HQ that unresolved policy issues warrant their involvement." Certification of the PSP becomes a granting of the policy and/or planning waiver.

The Silver Strand Shoreline study illustrates the point.[1] For this study an exception to the ER 1105-2-100 requirement to employ a regional model or site specific study (TCM or CVM) to analyze recreation benefits was granted. The rational for the exception was clearly stated; recreation benefits would not impact plan optimization or formulation. In this instance the PSP process seems to have worked well, however there is a potential for problems and conflict.

Policy division does not currently review the PSP. The lack of participation by the Policy Division in the PSP approval process sends a clear message to the districts. Moreover, the current practice of feasibility review reinforces this message. The districts understand that as long as the Policy Division plays no role in the review and approval of PSPs and does not use the PSP in the review of the feasibility report, then the PSP's role in the planning process can simply be as a hurdle to be jumped prior to receiving study funding. The districts also understand that without the participation of Policy, they cannot be sure any Policy waiver granted in the PSP will be honored in the review process. Furthermore, without the participation of Policy there can be no "unresolved policy issues" to warrant the ASA(CW) involvement.

There exist no formal method or requirement for coordination between the Planning and Policy divisions to discuss policy waiver request in the PSP. There is a need for Policy's active involvement in the PSP certification process and for a coordination method between Planning, Policy, and when necessary, ASA to certify PSP's which request policy waivers.

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[1] Silver Strand Shoreline, San Diego County, California, Reconnaissance Guidance Memorandum, 18 Sept 1995.

Evaluation of Headquarters Review Comments to Draft PSPs

The Institute For Water Resources recently completed a survey of district personnel, Assessment of Acceptability and Use of Project Study Plans (PSP survey). Respondents to the survey reported they received inconsistent feedback during Headquarters review of the PSPs. They complained that what was acceptable had become unacceptable. They indicated the review process seemed to vary from reviewer to reviewer and that too much detail was being required in the PSP. To evaluate the validity of these complaints, a compendium of Headquarters review comments to draft PSPs were compiled and analyzed. The analysis of this data generally supports the districts contentions.

A total of 39 draft PSPs (and IPMPs) and their review comments, as documented in the Reconnaissance Guidance Memorandums (RGM), were reviewed. Also, a number of certified PSP's were also reviewed. The PSP's were dated from 1994 to the present.

The feedback from Headquarters was not inconsistent in commission, but in omission. The comments made to the draft PSPs were very consistent and similar as a group, but were not consistently applied to equally deserving PSPs. Analysis of the draft PSPs and the review comments contained in the RGM indicated there has been no common vision of the PSP, either in the field or at Headquarters. The PSPs developed by the districts were as varied as the number of districts and project purposes. Review standards seemed to vary from PSP to PSP.

The most common review comments addressed deficiencies in the task specific scope of work, failure to identify all the tasks needed to accomplish the feasibility study. For example, projects involving dredging require a dredge disposal management plan. This plan must be developed during the feasibility study and therefore be included in the PSP's task specific scope of work. The preponderance of comments made by Headquarters were of this type and must be judged to add value to the PSP.

The level of detail provided in the PSPs was not consistent either between PSPs or within individual PSPs. The process of disaggregating major products and milestones into the task and sub-task necessary to clearly define the work, schedule and cost displayed no consistent standard. The level of detail provided varied from hour by hour schedules for specific workers by discipline and GS level, to one sentence paragraphs describing $100,000 work items. In both cases the PSP could receive the comment "insufficient level of detail."

The comment 'insufficient level of detail' was often used to describe the PSP. This term had two meanings in review. The first and most common meaning is the PSP failed to identify the complete list of task necessary to conduct a feasibility study. The second

meaning indicated that for the task identified, the questions of why, who, what, how, when and how much were not answered. However, this distinction is not made to the districts. One particular PSP which provided a surfeit of detail on the specific task identified, still received the 'insufficient level of detail' comment because it failed to identify all the task necessary to complete the feasibility study. Given the minute level of detail provided for the task identified, this comment probably caused disbelief in the district.

Suggestion for Change

There exist a need to develop within the Corps, a common vision of the PSP. The Guidebook for Preparation and Use of the Project Study Plan will help in this. Instituting a formal set of procedures and guidelines for the review process would also benefit this effort. Some ideas for the review process are outlined below:

A) Comments which do not give specific direction to the district should not be made. General phrases such as "insufficient level of detail" or "inadequate to direct the feasibility study" give little direction to correct the deficiency.

B) The PSP review manager should insure all seven required components (as required by EC 1105-2-208 and outlined in the Guidebook for the Preparation and Use of Project Study Plans) are contained in the PSP. If any components are missing, the PSP should be returned to the district without formal review.

C) The review team should structure their comments by segment. Each segment has a purpose and specific requirements, the comment should make specific reference to the requirement and the deficiency. Some ideas on each segment follow.

Reconnaissance Overview - With the expedited reconnaissance procedures outlined in PGL 96-3, the reconnaissance overview in the PSP will be the only reporting of the reconnaissance phase of the study. Comments to this section should concentrate on the assumptions being made for feasibility study, the without project condition identified and the list of alternatives identified for study in the feasibility phase.

Task Specific Scope of Studies - Comments to the SOS should be specific and fall under one of the following categories:

1) The comment identifies a specific task or sub-task which has been omitted from the scope of studies.

Example: The PSP omits risk and uncertainty analysis from the scope of studies. EC 1105-2-205 requires that a risk-based analysis be employed for all flood damage reduction studies. The EC specifies that the methodology to be employed in the feasibility study will be described in the PSP.

Example: The PSP, under the economic analysis sections, omits the task of future fleet forecast. A future fleet forecast is required by EC 1105-2-100 for all navigation studies.

2) For a specific task or sub-task which has been identified, the comment identifies one of the interrogatives which has not been answered.

Example: Task 22D-5, HTW evaluation does not identify who is to accomplish the task or how the task is to be accomplished.

Example: Task 22C-6, Future Fleet forecast fails to identify how this forecast is to be developed.

3) The comment identifies an assumption, or for a specific task a technique which is not consistent with policy.

Example: Task 22C-19, Recreational Benefit Analysis, proposes the use of unit day values to estimate recreation benefits. EC 1105-2-100 requires regional analysis using either the CVM or TCM when annual visits exceed 750,000. If the district desires a waiver of this requirement, a request for waiver including justification should be added to the PSP.

Work & Organizational Breakdown Structures. Comments to the Work and Organizational Breakdown Structures should address the following:

1) The comment identifies a deficiency and inconsistencies in the structure or the responsibility assignment matrix.

Example: The responsibility assignment matrix indicates the H&H branch as responsible for a survey of the river reach. The task specific scope of work indicates the local sponsor will do this work.

Feasibility Study Schedule Comments to the study schedule should address one of the following:

1) The comment identifies a logical error in the study schedule.

Example: The schedule indicates the optimization analysis will be completed in January, but the cost estimates necessary to do the optimization are not scheduled to be complete until March.

2) The comment identifies a conflict with policy;

Example: The schedule identifies a four year study period. The feasibility study is restricted to three years.

3) The comment identifies missing task.

Example: Task 22c-19 is not shown on the study schedule.

Baseline Feasibility Study Cost Estimate. The study cost estimate should show the cost by task, broken down by contributor (Federal or non Federal), and the level of cash versus in-kind service to be provided. The estimate should also show cost escalation through the study period. Comments should identify deficiencies in meeting these requirements and generally take the following form:

Example: The feasibility cost estimate does not indicate the in-kind contributions of the local sponsor.

Example: The feasibility cost estimate does not show price level escalation over the life of the study.

Example: The feasibility cost estimate does not include review support for the non-Federal sponsor during Washington level review.

Quality Control Plan. The quality control plan must provide a mechanism for measuring progress and study quality, assess adequacy of the work effort and ensure study conformity to all existing Federal policies and procedures. The quality control plan should identify the independent technical review team. Comments should identify specific deficiencies in one of these areas.

Example: The independent technical review team for this restoration study lacks representation from the biological disciplines.

Moving toward a common corporate vision of the PSP can also be augmented by training. Training material is being development which will supplement the guidebook. It is anticipated the training will take the form of a two day workshop. It is suggested a series workshops be conducted, first for Headquarters and then for district personnel.

Cost Effectiveness of the PSP

> "I firmly believe that review time for feasibility studies will be measurably shortened since their review effort will concentrate on whether the agreed upon studies were accomplished, not on what efforts were undertaken. ... While these up front decisions and concurrent review will incur costs, they will also result in overall project savings"
>
> - Major General Genega 28/Dec/1994

As was recognized by Major General Genega, the up front cost incurred to develop the PSP was expected to be recouped by shorter review and fewer revisions of the feasibility study. The cost effectiveness of this process is not known. Moreover, any effort to measure the cost effectiveness of PSP's must be cautious because of the counter factual nature of the process. There exist no with and without PSP conditions to measure. There is no way to determine how long or how much any study would have cost in the absence of the PSP. Evaluating the cost effectiveness of PSP must be based on impressions, perceptions, intuition, and judgement.

In a recently completed survey of district personnel, Assessment of Acceptability and Use of Project Study Plans (PSP survey), thirty one percent of survey respondents agreed with the statement; "PSP's are a waste of time and/or money." Forty eight percent of survey respondents disagreed with the statement; "In the long run, the requirement for a PSP saves money." Restating these results in reverse, sixty nine percent of survey respondents disagreed with the statement; "PSP's are a waste of time and/or money." Fifty two percent of survey respondents agreed with the statement; "In the long run, the requirement for a PSP saves money." These are only impressions and perceptions. The respondents have no objective way of quantifying these conclusions.

To better understand why some survey respondents believe the PSP's are not cost effective, the issue was included in a follow on telephone interview. The following was put to the interviewees:

> *The majority of mail survey respondents felt that the costs of PSPs are not offset by savings during the feasibility study. Why do you believe this belief is so prevalent?*

The responses below where selected for the insight they provide.

1.) "The PSP is something that is produced and not really used, thus PSP developmental costs are not realized during the feasibility stage."

2.) "The PSP costs money to develop and we receive little added value from its development at the district level since it is not a useful tool for the most part at the district."

3.) "Because we spend from $100,000 to $300,000 to develop a PSP depending on the study. This is a vast amount of resources when compared to a project that takes $2 million to complete. Thus it is tough to recoup the costs of the PSP when you spend a high percent of the total project costs on the PSP. Also things change from the detail contained in the PSP, so dollars spent on documenting this detail is not realized when you never perform the work due to deviations."

4.) "The problem I have is even though the PSP is beneficial, I believe HQ does not understand the dollars and time that goes into the development of a PSP. Less complex projects do not need PSPs that are high in detail."

5.) "When we do a study, there are many unknowns and scientific discoveries that make deviation from the PSP necessary. Also, the public involvement process molds the study. Thus, the time and detail that is addressed in the PSP is probably lost as the study progresses. A factor of reality were the best laid out plans will still need modification due to study findings and public input."

Responses 1 & 2 indicate the PSP's become knickknacks after they are certified. One may argue that simply writing the PSP forces the study team to think through the analysis and that this, in and of itself benefits the study process. However, it seems reasonable to conclude PSPs are not cost effective if they are not used in the study process. This is especially true when substandard PSPs are certified. A substandard PSP does not define the study well enough to be of benefit simply by the exercise of developing it, nor can a substandard PSP be used to manage the study.

A district's ability to ignore the PSP once it is certified indicates a systemic problem. How can the "contract" between all interested parties simply be ignored by the study team[2]? How can the document to be used in the review of the feasibility report for policy compliance and technical adequacy simply become a knickknack[3]? These issues were discussed in detail in the 'Project Study Plan as Contract' section of this paper.

Responses 3, 4 & 5 point out the "one size fits all" approach of the PSP guidance. All studies, regardless of size or complexity have the same requirements. Studies that are small in scope, short induration, simple in design, and in which the district enjoys a high subject

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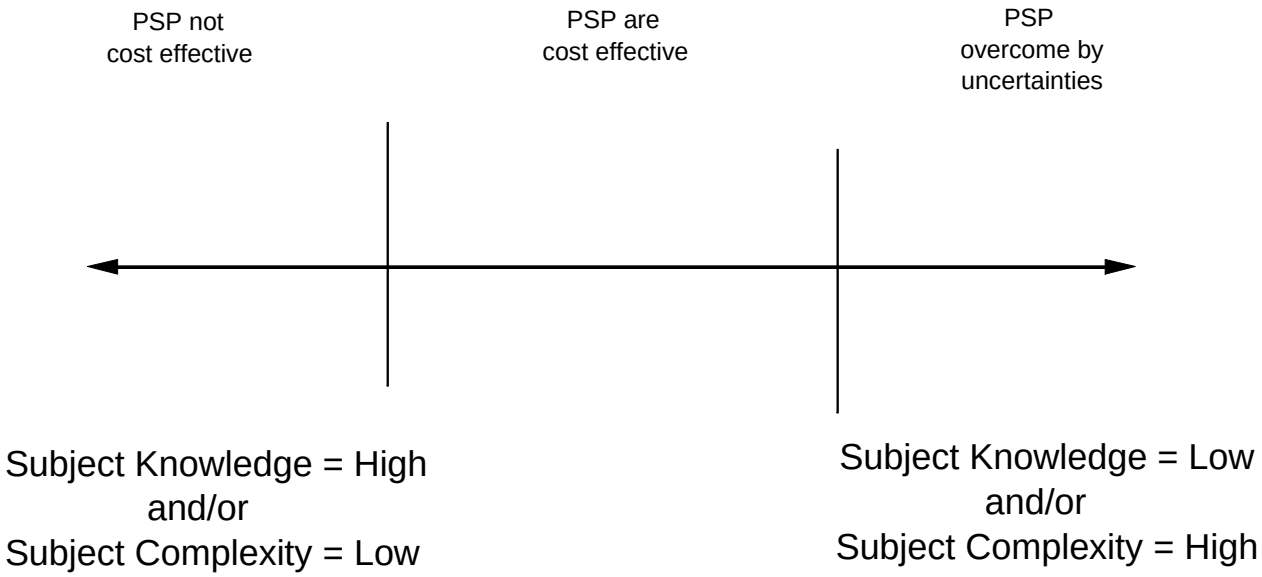
[2] Memorandum For Commanders, Major Subordinate Commands and District Commands, Subject: Project Study Plans, 28 Dec 1994, Major General Genega

[3] EC 1105-2-208 paragraph 4.e.

knowledge have the same PSP requirements as the large, complex, multi-year, low knowledge studies. This suggests a "Goldy Locks and the Three Bears" problem. The porridge is some times too hot or too cold. Figure 1 illustrates this concept. The idea behind the knowledge complexity continuum is that there is a range of study size and complexity for which the current guidance fits, i.e. the porridge is just right. Outside this range, alternative procedures should be developed. The left side of the continuum covers the small, relatively uncomplex studies with high district knowledge. It can be said that these same factors; small in scope, short induration, simple in design, and in which the district enjoys a high subject knowledge, should make the PSP easy to develop. Also, you have to develop a scope of studies anyway, so how hard can it be to expand that into a PSP? Both points are valid. The difficulty comes in the review process. Rarely do HQ staff have a high local subject knowledge. It is far easier to write a scope of study that is comprehensive and coherent to the knowledgeable reader than for the unfamiliar reader. An example of this might be the Cook Inlet Navigation study. One review comment required the PSP to include a survey of the benthic community in the proposed channel site. This seems perfectly reasonable unless one knows the diurnal tides in Cook Inlet are the second largest in the world and create currents in excess of 4 knots over the channel area. The only things in the benthic community are large rocks which roll back and forth with the tides. This example illustrates an education process which is necessary for every PSP, regardless of size. Responses 3 & 4 indicate the cost of this education process is not recouped for small studies.

Knowledge - Complexity Continuum



The right side of the continuum captures studies which by natural design must span many years, are very large is scope, scientifically complex, and for which the districts have a low subject knowledge. Telephone interview response 5 alludes to this type of study with the statement; "there are many unknowns and scientific discoveries." Developing a meaningful PSP is daunting because of the many possible combinations and permutations the study could take.

Large studies are characterized by uncertainty. Unanticipated discoveries and events are common. It is impossible to develop task specific scopes of work for unanticipated discoveries and events. Unforseen discoveries and events can radically change the scope and direction of the study; rendering the PSP obsolete. Developing task specific scopes of work, budgets, responsibility assignment matrix, undergoing the review process, all the efforts for a comprehensive and coherent PSP are overcome by events. The effort lost.

The idea of 'one size fits all' guidance not being cost effective has intuitive appeal. The difficulty comes in defining boundaries between too hot, too cold and just right. To help define small projects and how the PSP process might be improved, the following section examines the practices used in the Continuing Authorities program.

Examination of Small Project Authorities' Procedures and Practices as They Relate to Project Study Plans

General

Study management and report processing procedures for the Small Project authorities vary by type of authority. Federal participation in small project authorities are restricted by statute. There are both program and project limits. For individual projects, limits on Federal participation run from $500,000 for Section 14 and Section 208 projects to $5 million for Section 205 and Section 204 authorities. Study cost limits are not absolute but the following guidelines are taken from EC 1105-2-209, Implementing Ecosystem Restoration Projects in Connection with Dredging; Section 204 projects.

> "As one criterion for evaluating the reasonableness of proposed study costs, a target maximum of 15 percent of the total ecosystem restoration costs for projects costing less than $1 million and 10 percent of costs for more expensive projects has been established.[4]"

This heuristic is used in the following analysis to calculate implied study limits and thus delegated authority.

Section 204 Authority

The following information was taken from EC 1105-2-209, Implementing Ecosystem Restoration Projects in Connection with Dredging. This guidance outlines the policy and procedures for conducting a Section 204 study. This EC was dated 31 August 1995.

There is no requirement for a PSP to conduct a Section 204 study. Section 204 studies are done in two phases. The first phase is called an initial appraisal and is funded by district O&M monies. The initial appraisal is limited to $5,000 and is approved by the MSC. The initial appraisal is submitted to HQ with the request for feasibility study funding. The second phase is the feasibility study. EC 1105-2-209 states; "Feasibility level studies will be initiated based on the MSC evaluation of an initial appraisal report including the non-Federal letter of intent to cost share."

MSC's are delegated the authority to approve the feasibility report when the Federal

[4] EC 1105-2-209, 31 Aug 95, Page A-9 Paragraph (3).(b)

share of the implementation cost are less than $5 million. If the project goes to construction the feasibility cost (but not the initial appraisal cost) are added to the implementation cost to calculate the non-federal cost share. The cost sharing for section 204 projects are 75% federal - 25% non-federal. The implication of these rules is that the HQ will fund feasibility studies with Federal costs up to $665,000 based on the $5,000 initial appraisal. This being all Federal money. This is calculated as 10% of the total project cost with the maximum $5 million Federal share.
The salient points are that no PSP or its substitute is required and approval authority of the initial appraisal and feasibility report have been delegated to the MSC.

Section 1135 Authority

The following information was taken from draft EC 1105-2-206, Project Modifications For Improvement of the Environment. This was the interim guidance for implementation of Section 1135 of the Water Resources Development Act of 1986, dated xx xxxx 1995.

There is no requirement for a PSP to conduct a Section 1135 study. The study process has two phases. The first phase is called the Preliminary Restoration Plan (PRP). The PRP is funded out of the O&M account and is generally limited to $5,000. This report determines the project, estimates the cost of the feasibility study and the cost of the project. The report "is forwarded to Headquarters and serves as the basis for approval of the allocation of funds." The second phase is the feasibility phase which ends with a Project Modification Report (PMR). Both phases are funded 100% Federal. If the PMR is consistence between the PRP, authority to approve the PMR is delegated to the MSC.

The Section 1135 project authority is limited to $5 million. This implies a maximum feasibility study cost of $500,000. The salient points are that no PSP or its substitute is required and approval authority of the feasibility report has been delegated to the MSC. The delegation of approval authority was of special interest in that the environmental studies require analysis of habitat unit output and incremental cost analysis of the environmental outputs, neither of which the districts nor the MSC's have as much experience with.

Section 14, Section 103, Section 107, Section 111, Section 205, and Section 208 Authorities

The following information was taken from draft EC 1105-2-211, Continuing Authorities Program Procedures. This was the interim guidance for implementation of Continuing Authorities Program projects, dated 15 February 1996.

The Continuing Authorities Program requires PSP's if feasibility study costs are expected to exceed $100,000. The feasibility study is initiated based on the division commander's concurrence with the district commander's assessment that the problem appears to meet Federal interest and resources are available to conduct the study. An early milestone is established (approximately $20,000) to assess if further study is warranted and if cost sharing will be required. Feasibility study cost above $100,000 are cost share 50-50. "If the Study appears to require cost sharing, development of the Project Study Plan and negotiation of the feasibility cost sharing agreement will begin and continue concurrently with ongoing feasibility study activities."

The MSC has approval authority for all decision documents for projects less than $6 million. This implies the districts may negotiate and the MSC may approve FCSA's for studies up to $600,000 in cost. The important points here are that PSP's are required, but their approval has been delegated to the MSC.

Summary of Small Project Authorities

Table 1 summarizes PSP requirements and delegated study cost authority in the Small Projects Authorities.

Table 1
PSP Requirements for Small Project Authorities

Authority	PSP Required?	MSC delegated authority
Section 204	no	$665,000
Section 1135	no	$500,000
Section 205	yes*	$600,000
Section 107	yes*	$480,000
Section 103	yes*	$200,000
Section 111	yes*	$200,000

* For feasibility studies with cost over $100,000.

In practice studies with cost up to $2 million dollars have been approved and funded and studied without PSP review and approval at Headquarters[5].

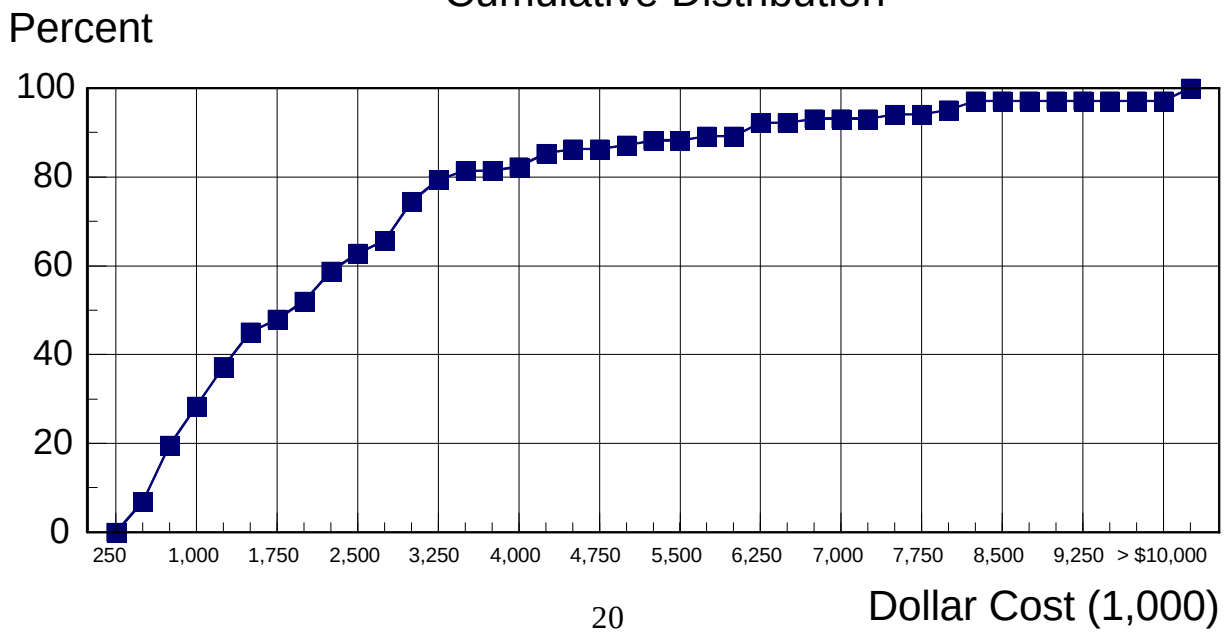
[5] Telephone conversation with Russ Rangos, Continuing Authority Program Manager

Examination of
Feasibility Study Cost

A PSP is required for all feasibility studies, regardless of size or complexity. The small project authority is operating either without PSP's or with a delegated approval process. To the extent that GI studies are similar in size and complexity to the small projects authority, there seems to be an opportunity for alternative and possibly more cost effective procedures. On the other end of the scale are large studies characterized by considerable uncertainty. To the extent efforts spent on defining task specific scopes of study, schedule, budget and responsibility matrix are rendered of no value by unforeseeable events there is an opportunity to alter the PSP requirements to minimize this affect.

An examination of the June 1996 GI data base was made. The information from this database used in this analysis is presented in appendix A. There were 113 studies in the database. Studies with $0 estimates for feasibility study cost were eliminated from the analysis. Also, a study estimated at $24,000 was eliminated, leaving 102 studies in the analysis. The remaining feasibility study costs ranged from $284,000 to over $40 million.

Figure 1
Feasibility Study Cost
Cumulative Distribution



From: GI Data Base
Current Studies - June 96

Figure 1 shows the cumulative frequency curve for GI feasibility studies. These cost are total study cost including both the Federal and local sponsor share.

As indicated in Figure 1, 45 percent (46 studies) have total feasibility cost below $1.5 million. 28 percent (29 studies) fall below $1 million. Almost 20 percent (20 studies) have estimated cost below $750,000. Even at the $500,000 level there were seven studies (7 percent). This data indicates there were a significant number of general investigation studies which might be defined as small. Also, this analysis shows delegating PSP approval authority to the MSC for small general investigation studies has the potential to significantly reduce Headquarters workload associated with PSP review and certification.

There were also three studies on the other end of the continuum. These three studies represented 30 percent of the total general investigation study funds. One study, the Upper Mississippi River-Inland Water Way Navigation Study, at $46 million, represented 14 percent of the general investigation study funding. The Ohio River Main Stem study is estimated to cost $37 million and the ACF/ACT Comprehensive study is estimated at $15 million. The smallest of these studies is almost twice as large as the next largest study. This puts them in a class by themselves.

This class of studies are characterized by long duration, complexity and uncertainty. The nature of these studies is such that the number of possible, and a priori identifiable, permutations the study could take makes developing the PSP a Herculean task. Furthermore, the unforeseeable nature (uncertainties) of these studies guarantees the PSP will be overcome by events.

An alternative PSP process may benefit the “large” studies. The process should provide for a comprehensive and coherent study, and recognize the discovery process intrinsic to these studies. These are competing goals. A comprehensive and coherent PSP requires a very detailed task oriented scope of studies. To avoid the “overcome by events” syndrome, the less effort spent on the scope of studies the better. The challenge then is to find the right balance between these competing needs.

One alternative approach features a “rolling” PSP. Under this approach the PSP would still provide a coherent framework for the entire study, answering the broad questions of project purpose, study goals and give the raison d’etre of specific study task. However, the

requirement for a detailed task specific scope of studies would be limited by a benchmark. This benchmark could be a decision milestone or simply a time limit, say 24 months. At the benchmark the PSP would then be re-crafted and recertified for the next benchmark. This concept of a "rolling" PSP gives definition to the near term study effort without investing resources in the less foreseeable future. In this way it can better balance the needs of a comprehensive and coherent study plan with the reality of study dynamics.

This data analysis had three major findings and offers two suggestions. The three findings are summarized below:

1.) The population of general investigation studies is not homogeneous in size.
2.) There exist a significant number of "small" general investigation studies.
3.) There is a distinct population of "large" studies.

The two suggestions are to consider delegating PSP approval authority for "small" projects to the MSC and to identify alternative procedures for the "large" studies based on the concept of a "rolling" PSP.

Appendix A

GI Data Base

Current Studies - June 1996

	DIS	DIVISION	CWIS	FYFEASDOL	SCHFEASTOT	ACTFEASTOT	STUDYNAME1
1	LMN	LMV	012863	0	0	0	JEFFERSON AND ORLEANS PAR
2	LMN	LMV	012909	0	0	0	EAST BATON ROUGE PARISH
3	LMN	LMV	0LMN03	0	0	0	LIVINGSTON PARISH
4	NPW	NPD	059050G	1	0	0	FINAL BASIN REPORT
5	ORL	ORD	076135	0	0	0	OHIO R, GREENWAY CORRIDOR
6	SPL	SPD	012331	0	0	0	LAS VEGAS WASH - FINAL
7	SPN	SPD	013133	0	0	0	UPPER PENITENCIA CREEK
8	SPN	SPD	010429	0	0	0	PILLAR POINT HARBOR
9	NAP	NAD	013084	0	0	0	BRIGANTINE I.TO GREAT EGG
10	NAP	NAD	013082	0	0	0	DEL COAST-CAPE
11	NCC	NCD	007922	24	24	0	ILL SHORE INT 1
12	NPA	NPD	010375	0	284	0	CHIGNIK HARBOR
13	NPP	NPD	081142B	0	360	360	WILLAMETTE R BSN COMP REV
14	ORH	ORD	012750B	127	394	0	POINT PLEASANT RIVERFRONT
15	ORH	ORD	010396B	250	399	0	CABELL/WAYNE PORT
16	ORL	ORD	092748	60	400	0	WABASH RIVER, NEW HARMONY
17	NAP	NAD	010280	0	452	0	MAURICE RIVER (INTERIM)
18	ORH	ORD	010396B	181	494	0	ERICKSON/WOOD CTY PORT
19	NCC	NCD	013003	182	542	0	ILL SHORE INT IV,
20	MRO	MRD	012736	0	600	0	RALSTON AND LEYDEN CREEKS
21	ORP	ORD	013359	0	600	0	TYGART RIVER - BARBOUR
22	SWA	SWD	012487	226	600	642	LAS CRUCES, NEW MEXICO
23	SWF	SWD	012769	288	616	0	GRAHAM
24	NAP	NAD	013061	0	626	0	DEL BAY COASTLINE
25	SWF	SWD	074799	0	676	0	PECAN BAYOU LAKE
26	ORH	ORD	012750A	126	726	0	PARKERSBURG/VIENNA RVFRT
27	NAP	NAD	013061E	313	726	0	DEL BAY COASTLINE
28	NAP	NAD	013061F	319	729	0	DEL BAY COASTLINE
29	NAP	NAD	013061B	134	729	0	DEL BAY COASTLINE
30	NAP	NAD	013061A	81	730	0	DEL BAY COASTLINE
31	NAP	NAD	013061G	198	740	0	DEL BAY COASTLINE
32	NAP	NAD	013061C	244	771	0	DEL BAY COASTLINE
33	NPA	NPD	010324	52	812	723	COOK INLET
34	SAJ	SAD	010128	54	846	0	TAMPA HAR-BIG BEND
35	NAP	NAD	013061D	120	863	0	DEL BAY COASTLINE
36	NPA	NPD	010429	0	936	0	ST. PAUL HARBOR

37	SAJ	SAD	013045	107	962	0	BREVARD COUNTY BEC
38	MRO	MRD	012587	200	986	0	ANTELOPE CREEK, LINCOLN
39	SAJ	SAD	012490	88	1000	0	RIO NIGUA AT SALINAS,
40	SPL	SPD	013274	500	1000	1000	PORT OF LONG BEACH
41	SWA	SWD	012776	430	1020	0	ESPANOLA VALLEY, NM
42	NAP	NAD	013084B	0	1043	0	BRIGANTINE ISLAND INTERIM
43	NAP	NAD	013082C	0	1054	0	FENWICK ISLAND INTERIM
44	SPK	SPD	012424	0	1058	0	TULE RIVER BASIN
45	SAS	SAD	012809	87	1090	0	L0WER SAVANNAH RIVER
46	NAP	NAD	013082B	0	1090	0	BETHANY BEACH/S.BETHANY
47	NCS	NCD	012551	286	1174	0	CROOKSTON
48	SPN	SPD	057550	172	1222	0	SAN FRANCISCO COUNTY OCEA
49	MRK	MRD	012563	46	1224	0	BLUE RIVER BASIN,
50	SPN	SPD	010326	1320	1330	0	SAN CLEMENTE CREEK
51	ORL	ORD	012802	82	1364	0	WABASH RIVER
52	NAP	NAD	013084A	0	1391	0	ABSECON ISLAND INTERIM
53	NAB	NAD	012709	230	1424	0	JENNINGS RANDOLPH LAKE -
54	SWL	SWD	013227	37	1480	0	MAY BRANCH, FORT SMITH,AR
55	ORL	ORD	012932	575	1499	0	BEARGRASS CREEK
56	LMS	LMV	012217	326	1500	0	ALEXANDER & PULASKI COUNT
57	NAP	NAD	013110	513	1500	0	LOWER CAPE MAY MEADOWS -
58	SAJ	SAD	014310	630	1532	0	PONCE DE LEON INLET
59	NED	NED	081116	0	1617	0	WESTFIELD RIVER BASIN
60	POD	POD	012902	148	1680	0	WAILUPE STREAM FLOOD CONT
61	LMN	LMV	012864	250	1775	0	WESTWEGO TO HARVEY CANAL
62	ORL	ORD	012759	403	1848	0	INDIANAPOLIS
63	SPL	SPD	012962	0	1850	1850	NORCO BLUFFS
64	NAN	NAD	013102	460	1946	0	RARITAN BAY TO SANDY HOOK
65	NAP	NAD	013082A	0	2047	0	REHOBOTH BEACH/DEWEY
66	SPK	SPD	012674	400	2100	0	YUBA RIVER BASIN
67	NAP	NAD	013083	195	2100	0	TOWNSEND INLET TO CAPE
68	SAW	SAD	055810	8	2168	0	NEUSE RIVER
69	SPL	SPD	012831	802	2180	0	SEVEN OAKS PRADO DAM
70	NCS	NCD	012463	486	2200	0	GRAND FORKS
71	SPL	SPD	014196A	500	2240	0	LACDA WATER CONSERVATION,
72	SAJ	SAD	010404	551	2265	0	JACKSONVILLE HARBOR
73	NCC	NCD	010249	443	2390	0	DES PLAINES RIVER
74	SPL	SPD	014224	500	2420	0	LACDA WATER CONSERVATION,
75	SPN	SPD	010314	1050	2500	0	SAN FRANCISCO HARBOR, CA
76	SPL	SPD	012728	0	2516	0	TUCSON DRAINAGE AREA
77	SPL	SPD	013238	0	2590	0	RIO SALADO, SALT RIVER
78	NCS	NCD	014126	315	2620	0	DEVILS LAKE
79	NPS	NPD	014127	15	2758	0	CHIEF JOSEPH DAM
80	SPK	SPD	013146	750	2800	0	SOUTH SACRAMENTO COUNTY

81	NAB	NAD	010031	216	2840	0	BALTIMORE HARBOR
82	NAP	NAD	013085	1008	2860	0	BARNEGAT INLET TO LITTLE
83	MRK	MRD	012381	620	2900	0	TURKEY CREEK BASIN,
84	SAC	SAD	010331	290	2960	0	CHARLESTON HBR-DEEPENING
85	SPK	SPD	012425	306	2964	0	KAWEAH RIVER BASIN
86	SPN	SPD	012559	100	2972	0	UPPER GUADALUPE RIVER
87	ORH	ORD	010133A	617	2979	0	LONDON LOCK REPLACEMENT
88	NCB	NCD	058320	4	3094	0	ST LAWRENCE SEAWAY
89	SAS	SAD	050730	0	3202	0	BRUNSWICK HARBOR
90	SAW	SAD	012835	665	3222	0	DARE COUNTY BEACHES
91	SWG	SWD	053894	64	3225	3225	GIWW - ARANSAS NATIONAL
92	LMK	LMV	012742	45	3240	0	JACKSON METROPOLITAN AREA
93	SWG	SWD	010336	222	3300	0	GIWW - HIGH ISLAND TO
94	SPL	SPD	012868	630	3310	0	WHITEWATER RIVER BASIN
95	SPK	SPD	012360	400	3931	0	CALIENTE CREEK
96	NAB	NAD	012995	1753	4048	0	OCEAN CITY & VICINITY
97	LMN	LMV	013237	1082	4080	0	ORLEANS PARISH UFC
98	NPS	NPD	012692	276	4200	0	HOWARD HANSON DAM
99	NAP	NAD	010301	42	4430	0	CHES & DEL CANAL-BALT HBR
100	LMN	LMV	081289	429	5000	0	INTRACOASTAL WATERWAY LOC
101	SAW	SAD	010312	1910	5060	0	CAPE FEAR-NORTHEAST (CAPE
102	SPK	SPD	012867	2180	5600	0	ARROYO PASAJERO CREEK, CA
103	LMK	LMV	012808	1059	6095	0	MISSISSIPPI DELTA, MS
104	NPP	NPD	010320	900	6100	0	COLUMBIA RIVER CHANNEL DE
105	LMN	LMV	050100	175	6159	0	AMITE RIVER AND TRIBS
106	SAJ	SAD	012384	224	6600	0	COAST OF FLORIDA -
107	LMN	LMV	012875	1600	7500	0	MR&T, MORGANZA, LA TO THE
108	SWF	SWD	012669	1459	8000	0	UPPER TRINITY
109	LMN	LMV	013236	1190	8100	0	JEFFERSON PARISH UFC
110	NAP	NAD	010138	65	8235	0	DELAWARE RIVER COMP NAV
111	SAM	SAD	088919	1295	15047	15047	ACF/ACT COMPREHENSIVE
112	ORL	ORD	012245	2750	37356	0	OHIO RIVER MAINSTEM
113	NCR	NCD	010315	7891	45980	0	UMR-IWW NAV STUDY