Management in World Bank Education Projects: Analysis of Experience

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MANAGEMENT IN WORLD BANK EDUCATION PROJECTS:
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Abstract

This paper analyzes the management of seventeen Bank-supported education projects in twelve countries. An analytical framework drawn from management theory is applied to case studies of the projects to identify factors associated with effective project management. A model for improved management planning is developed from the analysis. This model emphasizes the need for unique management systems which fit a given project to the management capacity of implementing organizations.

Among the findings: Projects which are more complex, with high levels of innovation and needs for coordination, need stronger management, as do projects with relatively low levels of policy consensus between the Bank and Borrowers. Low levels of environmental stability also intensify needs for strong management. Projects which provide new educational services should include activities which mobilize demand from intended beneficiaries.

Strong management is associated with skilled management teams that have good access to high levels of authority and continuity over the life of the project. Effective coordination of project activities is central to effectiveness. It is strengthened by clear access to authority, administrative and budgetary control over implementing units, and flexible use of resources to support activities which improve communication among project organizations and units.

Institutional development requires planned strategies that facilitate phased expansion of project complexity, transfer of management capacity developed in project units to line agencies, and a base of strong project management.

The Bank can contribute to stronger project management through more explicit attention to management analysis and planning as part of project preparation. Also important are flexibility with respect to enroute adjustments in project design, and supervision that is phased to fit with management development activities and that involves Bank staff with appropriate technical and managerial expertise.
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EXECUTIVE SUMMARY

Effective project management, defined as the "art of getting things done through other people," is an essential component of World Bank education projects. Without good management, project designs fail, resources are wasted, policy directions do not receive a valid test. Perhaps most importantly, the educational objectives on which projects are founded are not met, with significant consequences for the intended beneficiaries.

Management, in short, is the link between theory and practice, between design and effective action.

A concern for continued improvement of management in Bank education projects led the Education and Training Department of the Bank to commission this study, which is to identify lessons from experience in Bank education projects that can help improve project management. Seventeen education projects in twelve countries, chosen by Bank staff to represent a range of management problems, were reviewed.

The study is part of a larger program of the Education and Training Department designed to increase awareness on the part of Bank staff of the potential for improved project management and to provide concrete suggestions as to how this potential may be achieved.

The study is limited to a review of Bank experience as reflected in Project Completion Reports, supplemented by some interviews with Bank staff and greatly assisted by critical review within the Education and Training Department and by Regional education staff.

Approach

The study was completed in three stages. In the first, the data were reviewed to identify the major management issues faced in the projects selected. These were outlined in a preliminary paper, which was reviewed by Bank staff. This resulted in a list of preliminary management issues of concern to the Bank:

- Project Complexity and its effect on management.
- Relative Stability in the project management environment.
- Relative degree of Innovation in the project, and of Demand for educational services.
- Needs for Institutional Development.
- Problems encountered in Operational Management -- such as procurement, scheduling and monitoring.

In the second stage these issues were reviewed against fundamental management concepts to further categorize the issues and establish patterns of relationships among them.

The result was a conceptual framework which links thirteen management factors with project management performance. The framework was used to guide the development of case analyses of the management dimensions of each project. These in turn permitted ratings of overall project management performance, as well as assessments on each of the thirteen factors, leading to identification of patterns across the factors which are associated with different levels of performance.
In addition to patterns, the analysis identified a range of specific lessons from project experience which appear relevant to project management planning (a full summary may be found on pages 50-54).

The analysis culminates in a proposed operational framework which integrates the findings of the study into Bank project planning and appraisal processes (p. 57). The framework is intended as the basis for further critical analysis and development towards the goal of stronger management planning.

The third stage of the study again involved critical review by Bank staff, both for accuracy of the case data on projects and for analysis and interpretation. Comments received have been incorporated into the present version of the study.

Principal Findings

Planning for Bank education projects has, by and large, emphasized analysis of inputs and outputs of improved educational systems. This is a fundamentally important and valid form of planning. Much less attention, however, has been given to design of management systems which support the effective and efficient use of project inputs. In consequence, a range of management problems are encountered and institutional performance weakened. Management performance was rated as "Fair" or "Poor" in ten of the seventeen projects reviewed; as "Good" or "Very Good" in seven.

Relatively weak management performance is reflected in lengthy project delays, difficulty in meeting both output and institution building objectives, weak coordination of project institutions and components, lack of social demand for innovative educational services, and mutually unresponsive relationships between the Bank and the Borrower.

Planning for management of education projects can be made more systematic with beneficial impact through incremental adjustments to the Bank's project development cycle. In particular, formalized management planning with the Borrower as part of project preparation is recommended.

Procedures for assessing Borrower management capability appear, from the data, to be relatively unformed at this time. Improvement of management assessment procedures, incorporated with project feasibility analysis, would greatly aid management planning.

Given the multiple environments in which Bank projects must be implemented, management planning should employ "contingency" approaches. These emphasize that no single management approach will be appropriate in all contexts; instead, unique management systems should be created out of several management approaches to fit the needs and capabilities of Borrowers.

Performance in larger, more complex projects improves with Borrower management systems which have multiple access to authority at high levels, specific planned mechanisms to support coordination, better than adequate staffing and skill mix, and a high degree of staff continuity. The design of systems of this type requires a higher level of management analysis and planning than characterized many of the projects studied.
Better management performance is associated with better project monitoring and supervision by the Bank. Both monitoring and supervision activities of Bank staff can be strengthened through more explicit planning of the tasks and functions of supervision, and shaping of supervision activities to fit with management development needs of the project. This latter should include management training for Borrower staff and more intensive supervision early in first-time projects, highly complex projects, or follow-up projects where there is a history of management problems.

More complex projects characterized by relatively low levels of Bank/Borrower agreement on goals and means at negotiation require strong management systems, as well as good monitoring and good relations between the Borrower and the Bank for good management performance.

Institutional development is a relatively long term process which requires conscious development of strategies as part of project planning and design. Strategies shown to work in Bank experience are detailed in the study.

The introduction of innovative educational services, such as through comprehensive vocational schools, should be accompanied by planned actions to generate social demand for new services.

Various forms of coordinating boards or councils, established in many of the projects reviewed, universally failed. Mechanisms for inter-institutional coordination need considerable development.

Policy instability, and consequent lack of continuity in project management staff, is a principal cause of a range of management problems; however, strong management systems can cope with relatively high levels of instability, with delays in project completion being the main negative outcome.

Perhaps the fundamental conclusion for the Bank is that education project management can be improved through a higher level of management analysis and planning. The lessons identified in this study provide a useful basis of experience from which this improvement can be developed.

Applying the lessons of the study, as supplemented appropriately from other Bank experience and approaches to project development, will require an enhanced level of awareness of management design among Bank staff. Given that many Bank staff are not trained in management analysis and planning, in-house orientation and education programs are indicated.
I. INTRODUCTION

This study has been commissioned by the Education and Training Department of the World Bank. The terms of reference call for a summary overview paper on lessons learned from Bank experience in the management of education projects. The lessons are to be drawn from a review of completion documents for a sample of projects chosen by the Bank, supplemented by interviews with Bank staff.

Following an early draft of the study, consultations with Education and Training Department staff further clarified the desired structure and content of the paper. Given its intended use, and the need to update Bank staff on management principles, it was decided that a brief overview of the field of management should be incorporated. This follows as Section II: An Overview of Project Management.

In addition, it became clear that the study should identify both general patterns of management issues and specific lessons learned on more detailed aspects of project management. It was also thought helpful if the study could be built around a conceptual framework which would help organize and clarify the many lessons identified. Finally, the study should indicate directions through which the lessons learned might be incorporated in Bank staff work in project development and supervision.

The study has sought to address each of these needs. Section III presents the analytical framework used to guide analysis of the seventeen projects selected by the Bank. The findings of this analysis, organized by the framework, are also presented in Section III.

Both general patterns relating a number of factors in project management and specific lessons on individual factors emerged from the analysis. These are summarized at the beginning of Section IV.

Section IV, and the study, conclude with the presentation of a preliminary operational framework which begins the task of integrating the findings of the study into the Bank project development and supervision processes.

The qualitative nature of the data for the study (primarily Bank project completion reports) has dictated the form of analysis. Mini-cases summarizing management issues encountered were developed for each project, using the analytical framework. (These mini-cases are available upon request.) Secondly, the data enabled us to establish two categories of projects according to ratings of management performance, as well as to rate projects on the level at which the various factors in the analytical model operated. Together, these ratings enabled us to establish patterns across the management variables for each project and to relate the patterns to management performance. These patterns, in conjunction with examples from project experience, provide the basis for analysis in Section III.
Limitations of the Study

There are a number of limitations on this study. The projects studied were selected by the Bank to represent an informal, non-systematic sample of management issues. Project Completion Reports (PCRs) are the principle source of information on the projects studied. While these are remarkably consistent in format, they provide relatively little detailed information on project management issues. Moreover, PCRs are written by both Bank staff and consultants, who have differing levels of experience with the project being assessed, and whose analyses are written from different points of view. Interviews with Borrower staff have been outside the scope of the resources available.

Given these limitations, the study must be seen as exploratory. It is a systematic review of project management which has identified useful lessons from experience. Some of these lessons confirm "common sense" knowledge within the Bank about education project management. Others may provide fresh insight into management issues.
II. AN OVERVIEW OF PROJECT MANAGEMENT

The field of "management" incorporates concepts drawn from both research and experience. The complexity and dynamic nature of the field requires a degree of selectivity in the use of these concepts, particularly when the management situation to be studied is rather specialized (as is the case with Bank education projects). However, there are fundamental ideas which are generally useful and which have guided the present inquiry. These are reviewed here to provide an introductory framework for the analyses which follow.

The applicability of these concepts to the context of the management of Bank education projects is also discussed, both to make the ideas concrete for Bank staff and to set the stage for the analysis of Bank experience.

A. Four Basic Elements in Management

Management is generally defined as the "art of getting things done through other people" (Hellriegel and Slocum, 1982). In practical terms, this focuses management science on organizations created to enable people to accomplish tasks within particular circumstances, known as the organization's task environment. Four elements -- organizational structure, the nature of tasks, the people involved, and the task environment -- represent fundamental aspects of management analysis and management action.

1. The Task Environment

This concept incorporates all those factors external to the organization which affect performance, and thus decisionmaking. Principal elements of the task environment include other organizations (whether suppliers or competitors), political system influences, resources (including infrastructure), and technological developments.

Task environments vary along two key dimensions: complexity and stability. Complexity refers both to the number of factors and the degree to which they are similar. Stability refers to the degree to which the factors change over time, and the pace of that change. Complex and changing environments, in which the organization must contend with many dissimilar factors that change rapidly, pose different management problems than do simple, stable environments.

Bank education projects are, to some degree, carried out in two environments. One is the environment of the Bank, which has certain characteristics and is relatively similar for all projects. The other is the environment of the Borrower. These can differ significantly from that of the Bank and from each other, both from place to place and over time.

2. Tasks

The nature of the tasks an organization performs (the nature of its products or services) is a principal variable in management. Clearly, the production of a simple product or service for which there is stable and predictable demand requires different management than that needed for a complex service for which demand is uncertain.
Bank education projects are, by and large, engaged in offering services (or products to support services) which are complex in that they require the coordinated behavior of many different people -- students, parents, teachers, administrators, community leaders, politicians, builders, and so on. That Bank projects are by policy innovative increases the complexity by creating new services and products, or at least new ways of delivering known services.

3. People

Organizations function through the actions of individuals and groups. The skills, capabilities, motivation and values of these people are a critical factor in organizational effectiveness. Indeed, one of the principal challenges of organizational design is to organize human behavior for task achievement. The principal task of organizational development is very often to strengthen the capabilities of people within the organization.

Getting skilled and capable people, and enough of them, is an important challenge to all development projects, particularly when, almost by definition, lack of adequate human resources is a characteristic of underdevelopment, and thus of the environments in which Bank projects are carried out. Institution building components of Bank policy and projects clearly recognize the need to develop human resources.

That Bank projects are carried out in different countries also raises the issue of how people are best organized and motivated in a particular culture. Different traditions and values with respect to some of the most fundamental aspects of human behavior -- such as the nature of power and authority, the pattern of individual and group loyalties, and openness to innovation and change -- have important implications for management.

4. Organizational Structure

Management science would hold that, in the most ideal case, organizational structures would be created to organize the efforts of a particular group of individuals to accomplish specified tasks within a known task environment. The structure of the organization is the variable element, the component to which management design can be applied.

For example, highly structured "mechanistic" forms of organization seem to work well with relatively simple tasks in simple and stable environments. Complex and rapidly changing environments call for more flexible (or "organic") forms of organization, able to adapt swiftly to changing circumstances. Matrix management, which involves the creation of task-oriented teams drawn from different departments of the organization to carry out special projects, is an example of these.

The reality of Bank education projects is that, to one degree or another, they must be carried out in the context of existing organizational structures. Thus we find the Bank properly concerned with the nature and structure of the Project Implementation Unit. This concern extends not only to the immediate need to achieve effective implementation of the project at hand, but also -- and again by policy -- to achieving increased and continuing institutional capability within existing organizations to carry out future projects. These two needs can be in conflict, particularly when the existing organizational structure (for example, the Ministry of Education) has evolved to handle relatively routine tasks in a stable environment, while the project must
accomplish innovative tasks, usually involving other organizations, in an
environment that is changing (in part due to the effects of the project).

Thus a principal concern for management of Bank education projects is to
seek organizational structures which may be required to accomplish contradictory
tasks. As will be discussed in greater detail in later sections of this study,
this requires a rather high-order application of management science in widely
varying task environments, and a correspondingly high level of management design
capability within the Bank.

B. Management Approaches

Management science is, like architecture, a design science, concerned with
fitting a particular structure to its environment and intended use. Like all
design sciences, it draws heavily on concepts and principles from a variety of
fields. The list for management includes, among others: human behavior,
psychology and social psychology, political science, sociology, communication,
and economics. These concepts have been wed together in various combinations,
largely during the twentieth century, in a number of management approaches,
each of which has represented a particular view of "how to get things done
through other people." Or, in terms of the concepts discussed above, how to
design structures which organize the efforts of people to accomplish particular
tasks in a given task environment.

Four major approaches have emerged. Each of these, to one degree or
another, is relevant to a review of management in Bank education projects. One
reason is that while new approaches have emerged as the field has advanced, none
has been abandoned. Bank staff, operating in several different societies and
cultures, are likely to encounter more than one of these approaches in the
organizations with which they work. In addition, as will be discussed, the
fundamental task of management design -- to fit an organization to its tasks
and to its environments -- often requires a choice among approaches, or a unique
combination drawn from several.

1. The Traditional Approach

Emerging out of the study of large bureaucracies and industrial
organizations, the traditional approach emphasizes ways to create order and
stability in organizations. Tasks are seen as routine and capable of being
broken down into orderly components, and the task environment is seen as
relatively stable. The central concern in this approach is the use of formal
authority and highly structured forms of organizing, planning, controlling and
decisionmaking within formal organizational structures. People are assumed to
respond to formal authority, monetary rewards and job security.

Many, if not most, of the organizations with which the Bank works are
structured this way. The Bank itself has many traditional features, as
evidenced in the use of highly organized systems (such as the project
development cycle).

2. The Systems Approach

Systems theory, which emphasizes the inter-dependencies among components
within a system, leads to a more dynamic view of organizations, which are seen
as inter-dependent with their task environment. Organizations draw resources
from that environment in return for products and services. The internal
components of the organization are also inter-dependent, with changes in one
component affecting its relationships with others. This approach is
particularly useful in efforts to create organizational change, alerting
designers to possible widespread effects of changes within one part of the
organization, both within the organization and between the organization and its
task environment.

The relevance of the systems approach to Bank project management is evident
in education projects where a new component -- such as technical secondary
education -- is introduced, yet enrollments do not reach anticipated levels due
to lack of demand for education of this kind in the social environment.

3. The Behavioral Approach

Organizations act and achieve goals through the behavior of people.
Understanding, motivating and guiding human behavior is a central concern in all
organizations. The behavioral approach gives emphasis to individuals and groups
-- how they behave, how they interact, and how they learn and become more
effective.

Bank education projects involve at least two significant, and potentially
different, patterns of human interaction. One, of course, is that of the
Borrower agencies, a pattern determined uniquely by the culture(s) and
management approach of the society. The second is the pattern of interaction
between Bank staff (and expatriate technical advisors) and the individuals in
implementing agencies. This pattern involves interaction across cultures, with
significant implications both for expectations about project management and for
effective collaboration.

4. The Contingency Approach

The contingency approach to management rests fundamentally on the idea that
management systems must be created to fit a particular organization and its
tasks to a given task environment. The contingency approach thus draws on all
other approaches, and seeks unique solutions to unique management challenges.

Contingency approaches recognize three key variables which heavily
determine the nature of management designs. These are: the external
environment, the nature of tasks, and the individuals involved. Hellriegel and
Slocum identify the dimension of these variable as shown in Figure 1.

Figure 1: THREE CONTINGENCY VARIABLES

<table>
<thead>
<tr>
<th>External Environment</th>
<th>Stable and certain</th>
<th>Unstable and uncertain</th>
</tr>
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<tbody>
<tr>
<td>Tasks</td>
<td>Routine</td>
<td>Nonroutine</td>
</tr>
<tr>
<td>Individuals</td>
<td>Low tolerance</td>
<td>High tolerance</td>
</tr>
<tr>
<td></td>
<td>for uncertainty</td>
<td>for uncertainty</td>
</tr>
</tbody>
</table>

SOURCE: Don Hellriegel and John W. Slocum, Jr. Management. Reading,
Massachusetts: Addison-Wesley, 1982, p. 27.
Given the variability of the task environments for Bank education projects, the tension between existing management approaches, and the innovative and institution-building characteristics of Bank projects, the contingency approach to management design seems relevant for Bank staff. In fact, it seems clear that the Bank has to some extent allowed for variability in management approaches over time and across the many projects. However, contingency approaches require a relatively high level of sophistication in management design, and a level of management analysis which may not typically be part of project design and supervision.

Moreover, the circumstances of Bank projects are in many ways more complex than the contexts in which much management science has developed. For example, the three contingency variables reflect the application of the model in western, mostly U.S.A., settings. Bank education projects, while contending with these variables, also face others such as the skills and availability of individuals (the nature of the design variables for Bank education projects will be a principal focus of the analysis sections of this study).

C. Additional Management Concepts

Four selected additional concepts complete this brief overview of management science: value orientations, strategic/operational planning, organizational design and management techniques.

1. Value Orientations

Organizations succeed when their outputs (products, services) are so valued in task environment that resources are returned, enabling the organization to continue to exist and, perhaps, to grow. Thus a key variable in choosing organizational goals is the nature of the value structure(s) of those elements of the task environment which control resources.

In the case of a commercial firm, those value preferences are reflected in consumer preferences. In the case of development projects, the preferences are reflected in the support of the populace for the services being offered and in the values of the organizations which provide resources. In Bank education projects, these include both the Bank and the host government. To the extent that the Bank, the government and the people share common value orientations project goals and strategies can be developed with good consensus. To the extent that these orientations differ, as they are likely to do given the many different socio-cultural systems with which the Bank works (not to speak of the considerable variation found within most societies), agreement on goals and means may not be easily achieved, creating an important factor for project management.

2. Strategic and Operational Planning

Strategic planning is the ongoing process through which an organization analyzes the nature of the environment, defines the basic nature of the organization, sets goals, and defines fundamental courses of action (or strategies).

Operational planning flows from strategic planning, and focuses on the detailed means of implementing strategies. The two forms of planning go together in an interactive and iterative fashion, with management information and evaluation connecting the two.
Planning for Bank education projects involves both, but in unique environments which fundamentally affect the way planning is done and the degree of emphasis given to each form.

Strategic planning, of course, is the principal purpose of pre-planning, project preparation, and project appraisal. All of the elements of strategic planning are involved to some degree. The goals and design of a project are derived from an analysis of the educational environment. That strategic planning is a joint enterprise of the Bank and the Borrower, however, often leads to disagreement over fundamental goals and strategies. The uncertainty of the task environments, as well as different value orientations, make full analysis difficult and uncertain.

In addition, the Bank follows certain policies for lending in the education sector; for example, emphasis on vocational and technical education. Derived from a general view of needs for educational development in developing countries at a given point in time, these policies may or may not fit with the value orientations and specific needs of a given country at a given time.

Bank planning at this level appears heavily influenced by economic analysis. This is not surprising given that lending rationales rest fundamentally on economic return, no matter how indirect, and that the largest share of Bank lending (in dollar terms) supports construction and procurement. This contributes to an emphasis on inputs and outputs in Bank project planning and in Bank approaches to project management, at least as reflected in the proportion of pages in Project Completion Reports studied devoted to analysis of inputs and outputs as compared to pages devoted to project implementation and management. Similar emphases are found in project appraisal documents. Relatively little attention is given to the design of the management systems which are expected to transform inputs into the outputs specified in the design.

The emphasis on inputs and outputs carries over into operational planning, where considerable attention is devoted to scheduling of inputs. This is appropriate and necessary, even though it is apparently done in full recognition that these schedules are likely not to be kept (in only one of the 17 cases reviewed in this study was the project completed on time; yet institutional performance in eight of these projects was rated as good or very good).

Feasibility analysis is part of the project development process, and leads to decisions regarding the relationship between project scope and complexity on the one hand, and Borrower management capability on the other. Operational planning also includes the design of Project Implementation Units, and plans for the use of project resources (technical assistance, fellowship training, and operational funding) to support project management.

Much operational planning is the responsibility of the Borrower, with Bank oversight and assistance. This approach has the benefit of allowing for the development of management systems which fit with the local environment. It also has the disadvantage of placing operational planning in the hands of individuals whose management approach may not provide the kind of design the project requires. Nor is it clear, given the management problems encountered in the projects reviewed for this study, that Bank staff necessarily have the breadth of management vision that may be desirable.
The shape of strategic plans has important implications for operational planning. In the context of Bank projects, the goals and strategy of the project have implications for the management approach most likely to be effective. Factors in the task environment, of course, affect both the strategic plan and its operational counterpart.

3. Organizational Design 1/

Organizational design is the process through which the organization is adapted to its tasks and its environment. In the most simple terms, it is the way work is divided and assigned, units and departments established, authority created and delegated, and coordination mechanisms established so that the organization can achieve its goals.

In contingency approaches to management, organizational design is done in relation to the degree of complexity and stability in the organization's task environment. The linkage between the nature of the environment and the design of organizational structures comes through key variables which can, in theory, come under the control of the organizational planner.

Seven of these variables, and their relationship to different environments, are shown in Figure 2.

**Figure 2: ORGANIZATIONAL DIFFERENCES BETWEEN TASK ENVIRONMENTS**

<table>
<thead>
<tr>
<th>Organizational Property</th>
<th>Task Environments</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Simple/ Stable</td>
</tr>
<tr>
<td>Hierarchy of Authority</td>
<td>Centralization</td>
</tr>
<tr>
<td>Basis of Authority</td>
<td>Position in hierarchy</td>
</tr>
<tr>
<td>Division of Labor</td>
<td>High</td>
</tr>
<tr>
<td>Amount of Rules and Regulations</td>
<td>High</td>
</tr>
<tr>
<td>Formal Communication Flows</td>
<td>Rigid, formal</td>
</tr>
<tr>
<td>Objectives</td>
<td>Short range</td>
</tr>
<tr>
<td>Management System</td>
<td>Mechanistic</td>
</tr>
</tbody>
</table>

These variables, of course, have been developed for organizations in modern, largely western, technocratic societies. Nevertheless, they are somewhat more than illustrative of the variables that confront Bank and Borrower staff in designing project management systems (as we will see in the analysis portions of this study). The model posits that each factor, such as hierarchy of authority, will vary with organizations that have successfully adapted to

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1/ This section, and Figure 2 are drawn from Hellriegel and Slocum, op. cit., p. 306.
different task environments. Authority in simple and stable environments is likely to be centralized; and decentralized in complex and changing environments. And so on.

Contingency variables in organizational design highlight the need to establish structures in relation to the tasks to be accomplished and the nature of the task environment. Although Bank education projects have many common design features and task requirements (construction, international competitive bidding, etc.), they do operate in many differing environments. It follows that Bank staff must confront the need to design a wide range of types of management structures and processes to fit with the needs and capabilities of many different task environments. No single management structure or process will work for all Bank projects.

4. Management Techniques

The techniques of management are, in many ways, the most visible part of the field. While many development professionals may not be aware of task environments and contingency approaches, they do tend to have heard of PERT and Management By Objectives, and decision trees, trend analysis and program budgeting. The very concrete nature of techniques, their relative ease of application (if the data are available), and their undoubted utility help explain this visibility.

Techniques are indeed significant. However, they do appear somewhat less important than the more abstract concepts which, if carefully used, may create a much more effective system within which techniques can be used. One thinks immediately of the fact that, despite rather advanced scheduling techniques, all but one of the seventeen Bank education projects studied finished well after the anticipated completion date. Clearly the techniques had relatively little to do with more fundamental underlying realities of project management.

D. Summary and Implications

As the foregoing discussion ought to have illustrated, management is a complex endeavor -- perhaps the most challenging and difficult of human enterprises. In that management systems seek to create reliable and predictable task accomplishment under widely varying circumstances, they are the means through which much of the important work of society gets done.

That the creation of management systems is a complex, multi-variate activity requires the use of conceptual frameworks as heuristics for both management analysis and management action.

The present study, as an example of management analysis, requires such a framework. The framework presented in the next section of the study has been built from two sources. One is the set of fundamental management concepts discussed above. The other is the experience of the Bank in the management of education projects. No particular claim is made for the framework other than that it seems to serve reasonably well to organize and consolidate the management issues associated with the seventeen projects, in twelve countries, that served as the database for the review.
III. ANALYSIS OF BANK EXPERIENCE IN EDUCATION PROJECT MANAGEMENT

The main question for this study is: what lessons can be learned from experience that can help improve education project management?

We have approached the task of answering these questions from two vantage points. The first is the set of fundamental management concepts outlined in the previous section of the paper. These provided an initial heuristic tool for a first look at the data on Bank experience. The second is a group of preliminary concepts that emerged from a first review of project reports, of external Bank studies and policies, and from discussions with Bank staff. These were reflected in a preliminary paper reviewed within the Bank. 1/

The two sets of concepts are summarized in Figure 3.

Figure 3: Sources of Analytical Concepts

<table>
<thead>
<tr>
<th>From Management Theory</th>
<th>From Preliminary Study</th>
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<tr>
<td>TASK ENVIRONMENT</td>
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<td>NATURE OF TASKS</td>
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<td>PEOPLE</td>
<td>Project Implementation Unit Design</td>
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<td>Staffing &amp; Skills Patterns of Bank/Borrower Interaction</td>
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</table>

While these concepts alone did not provide a fully useful framework for the study, they did indicate that management issues tended to appear in two clusters. The first included issues associated with the design of the project and the ways in which it did or did not fit with its task environment. The second cluster revolved around the problems of operational management.

We also determined at this stage, inspired in part by Samuel Paul's work in analyzing successful development projects, to attempt to categorize projects according to some criterion which reflected management performance. We reasoned that, if projects could be differentiated with such a criterion, patterns of factors which were associated with effective management might be identified.

A. An Analytical Model

In the next stage of the analysis we re-examined these concepts in the light of management theory and the data, seeking a set of logically related concepts which fit both with theory and the preliminary concepts in the data. This led to the Analytical Model (Figure 4) which guided the development of project case analyses and the subsequent cross-case analysis reported here.

Figure 4: ANALYTICAL MODEL

The purpose of the model is to help organize the complex set of variables operating around education project management, increasing insight into the variables, their inter-relationships, and the patterns which seem to link different variables with effective management.

The data available were summarized in mini-cases for each of the projects studied, using as an outline those factors in the model for which information was available. After summarizing the qualitative narrative data bearing on each factor, we reached judgments on the level at which the factor was operating in the given project. These judgments, though checked within the research team, are obviously quite subjective. For this reason the mini-case data is provided in a second volume of this study, available upon request. Readers may wish to review the data and our judgments as they proceed through the study.

It is important to note that the limitations of the study only permit us to establish patterns of association, and these are based on subjective ratings of qualitative data. The project completion data themselves have been developed over more than a decade by a variety of persons. Although the completion reports are remarkably consistent in format, their content can only be taken as broadly indicative of the major elements of the project as seen by the individuals who completed the reports.

Patterns of association, of course, do not demonstrate cause and effect relationships. We do, however, use the qualitative data on the projects to indicate what these cause and effect relationships might be.

1. **Environmental Factors**
   Both from the preliminary data review and management theory we would expect to find factors in the task environment which affected the nature of management. The key theoretical variables in the project task environment -- complexity and stability -- are incorporated in the model:

   1. **Social Stability:** the degree to which society as a whole was stable during the project period. Examples of instability include revolution, severe civil unrest, natural disasters.
      Range: High-Medium-Low

   2. **Policy Stability:** the degree to which educational policy and institutional structure was stable during the project period.
      Range: High-Medium-Low

2. **Task Factors**
   The nature of the tasks to be accomplished by the organization provides a second major focus for review. The design of Bank education projects determines the nature of the tasks to be accomplished. These tasks are influenced by the task environment, and reflected in the data in four categories (shown in the model as "Project Design Variables"):

   1. **Goal/Means Agreement:** the extent to which the Borrower and the Bank agreed at appraisal on the goals and means (strategies) of a project. While the Bank generally does not lend unless policy agreement is reached, it is also true that compromises reached during negotiations do not necessarily eliminate policy differences, especially given
turnover of Borrower policy and management staff. It was hypothesized that the degree of agreement would predict to project success and the effectiveness of project management. Range: Good-Fair-Poor

2. **Complexity and Coordination:** the complexity of a project in relation to the management capacity of the project system. Complexity was assessed in terms of components, sectors (i.e., formal, nonformal, academic, vocational), levels (national through local) and institutions. Task complexity is an important management concept, and our first project review indicated that project complexity, and associated needs for inter-and intra-organizational coordination, was an issue of considerable significance in many projects. Range: High-Medium-Low

3. **Innovation and Demand:** the degree to which project components represented new forms of education, or new institutions. Our preliminary analysis had indicated that Bank projects are innovative by policy, and that the degree of innovation was related to the difficulty of management. The review also identified an apparent pattern of lack of social demand for innovative services as an indicator of the degree of innovation -- and as a potential challenge both to project design and to project management. Range: High-Medium-Low

4. **Institution Building Needs:** the degree to which the project sought explicitly to develop project management capacity, project institutional capacity, or both. The former was operationalized as Bank support for the development of the project management unit; the latter included support for development of the technical/professional capabilities of project institutions. This support included technical assistance, training and funding. Since institution building is also, by policy, a general goal of Bank projects, we expected this to be a component of most projects. The need to simultaneously pursue institution building and other project objectives had emerged as an important management issue. It was expected that higher needs for institution building would indicate relatively low institutional capacity and create more difficult management tasks. Range: High-Medium-Low

3. **Management Approach**

Our review of management theory indicated that the nature of the management approach (traditional, systems, behavioral, contingency) was an important factor in linking the nature of tasks and the task environment with the design of a particular management system. Clearly, all projects used one or more management approaches. Our data, however, did not permit us to draw systematic conclusions about the nature of these approaches: project designers, managers and evaluators have not given much attention to this kind of process variable. Speculating about approaches would be rather like predicting the existence of an unseen planet from the behavior of others. Thus at this point the approach factor holds a theoretical position in the model. We think it is important enough to include as a reminder, and also find it to be an important element in the action model presented in the final section of this study.
4. **Management System Factors**

The nature of the project management system is obviously of great interest. The issue of the structure and function of Project Implementation Units (PIUs) has received considerable attention in the Bank. 1/ Much of the discussion of project management and implementation in Completion Reports is about the project unit. The project unit, moreover, is a component over which Bank staff have some influence through project design. Project management as exemplified in the activities of a PIU forms only one component of a broader management structure, which includes in addition management in project institutions, and within the education sector at both central and regional/local levels. The data available for this study is mostly about PIUs, with some reference to wider management issues. These are incorporated in the analysis and discussion, but the model -- and the discussion -- are centered on the PIU.

Four factors relating to the nature of project management units emerged from the data:

1. **Access**: The degree to which the senior project manager has access to top decisionmakers in the system. Range: Good-Fair-Poor

2. **Coordination Control**: The nature and degree of control exercised by the project unit over the institutions, at different levels, involved in implementing the project. Range: Good-Fair-Poor

3. **Staffing and Skills**: The extent to which both the numbers and skills of staff in the project unit are adequate for project tasks. Range: Good-Fair-Poor

4. **Continuity**: The degree of continuity of key staff in project units. Range: Good-Fair-Poor

The nature of direct Bank support for the project unit, including technical assistance, training, funding, and supervision is explored in relation to these four factors. It was expected that relatively high levels on the factors would be associated with effectively managed projects.

5. **Operational Management Factors**

The project data indicated three categories of issues related to the operational management of projects:

1. **Input Management**: issues associated with the delivery and supervision of project inputs: namely, civil works, procurement, technical assistance, and training. Range: Good-Fair-Poor

2. **Monitoring**: issues associated with the development of monitoring information within the project, as well as with Bank monitoring and supervision. Range: Good-Fair-Poor

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3. **Interaction With the Bank:** the nature of the relationship between the Borrower and the Bank during implementation, including the degree of cooperation and the effectiveness of communication. Range: Good-Fair-Poor

6. **Management Performance**
   As a measure of overall management performance we used the Bank Project Completion Report rating for "institutional performance." This was an explicit judgement in 12 of the 17 projects reviewed. In the case of the other six, ratings were established from implicit judgements in the completion reports. Range: Good-Fair-Poor

7. **Inter-relationships**
   As Figure 4 indicates, the model posited a simple, linear relationship among the components. Environmental factors affect all components. Task Factors determine the management approach, and the cumulative impact of these two elements determines the nature of the Management System. The Management System, in turn, results in different kinds of operational management performance. The final result of all factors operating is overall management performance.

8. **Limitations Of the Model**
   Models serve two purposes: they guide understanding of complex processes, and they help predict the consequences of action in complex circumstances. As heuristics, they help us ask the right questions, both for analysis and the evaluation of action. The analytical model outlined above is purely an heuristic device, used to establish an orderly pattern of inquiry into very complex social processes with a limited data base. Even more than most models, it is much oversimplified. We have found it useful for its limited purpose, but no further claims for its validity can be made absent a level of research not possible within the limitations of the present study.

B. **The Data Base**

   The Completion Reports for seventeen projects, supplemented by limited interviewing of Bank staff, formed the database for this study. Two of these, which represented sequential phases of a project with the same objectives, were combined for analysis purposes (Colombia I and II). These projects were chosen by the Bank to represent a rough sample of education projects from all regions. An attempt was made to select projects of different sizes and of different levels of success.

C. **Findings**

1. **Overview**
   Table 1 provides a summary of the judgements reached for each project on the components of the model. It includes, in addition, some key quantitative indicators: project dollar volume, and number of months of delay encountered in reaching project completions.
The projects are organized in two categories: those rated Good or better on the Assessment of Management Performance, and those rated Fair or Poor. The discussion of the data is organized as follows. We begin with discussion of two components: Management System Factors and Management Performance. This is the most straightforward relationship in the data. One would expect high ratings on management system variables to be associated with good management performance, and the data do not disappoint us on this score.

Analysis then proceeds by adding components of the model to this initial pairing. Operational Management is added first, followed by Project Design Variables. Environmental Factors are added last, completing the sequential discussion and reconstruction of the data in Table 1.

The data are discussed in two ways. First, we review the patterns that emerge from comparing the ratings of the projects in the two performance categories. Second, we introduce examples and other qualitative data drawn from the mini-cases.
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2. Management Systems Factors and Management Performance

The data in Table 2 suggest that there is some association between delays in project completion and overall performance ratings. Projects in category I (Very Good or Good) averaged a delay of 22.3 months; those in category II (Fair or Poor) had an average delay of 41.6 months with the extraordinary Ecuador project included; with Ecuador removed from the numbers, the average was still some thirteen months longer than projects in category I (33.9 months).

Project size, as measured in dollar terms has only a very weak relationship with overall performance ratings, although in the same direction. The average cost of projects in category I was US$16.9 million; in category II US$20.3 million. With the large Thai project removed, the average cost in category II is US$17.5 million. Thus there is some support for the common sense notions that: (1) larger projects are more difficult to implement, and (2) delay in project completion is a criterion in Bank assessment of management performance.

However, the exceptions to these general conclusions are striking. Projects rated as Good had longer delays than projects rated as Poor (Yemen I, Colombia I, II). Of the three projects costing US$30 million or more, two were rated as Fair (Thailand IV, Peru I), one as Very Good (Ethiopia IV). Clearly some factors other than cost and delay are affecting overall management performance.

Some of these factors appear in the patterns of rating on management system variables. None of the projects in category I had a Poor rating on any of the four variables. Seven of the eight were rated Good on at least three of the factors.

In contrast, only one of the nine projects in category II had as many as three factors rated Good (Ethiopia I). Of the remaining eight, only two (Thailand IV and Congo I), were rated Good on as many as two factors.

It seems apparent that the quality of management (as distinct from the results of management as measured by project delays) is a significant factor in overall assessment of management performance. Moreover, good management seems to be the result of the combination of two or more of the factors rated. This, of course, is not surprising, but it is useful to find common sense supported by the data.
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The next question, obviously, is what factors contribute to good management. The data permitted us to study four factors: project experience on each is analyzed below.

(A) Access

Access was rated as Good for eleven of the projects, all seven in category I and four in category II. Several interesting patterns emerge from the experience with these projects.

In two of the projects (Haiti, Yemen), the project management structure was designed to provide multiple access to top decisionmakers. In the Haiti project, the Project Implementation Unit (PIU) reported directly to the National Council for Development and Planning, but was physically housed in the Ministry of Education. Both the Ministry of Education and the other key implementing agency, the Ministry of Agriculture, appointed senior liaison officers directly to the PIU staff. This gave the unit direct access to the three most significant policy agencies, and at high levels. Similarly, in the Yemen project, the unit reported directly to the Minister of Education, but was housed in the Ministry of Construction, strengthening coordination of construction elements.

The four Ethiopia projects were managed by a PIU which began in the Department of Construction and Maintenance of the Ministry of Education, and was shifted over four projects as the government consolidated construction activities, eventually leading to the Ethiopian Building Construction Agency, which handles all government building. Access was maintained through these shifts as the original PIU director was promoted to higher posts in the newly consolidated agencies, in effect supervising the PIU as it made these transitions. Here continuity was an important component of access.

In four of the remaining five projects, the PIU reported directly to the Minister of Education or to the Permanent Secretary, or equivalent. The exception is the Thailand IV project, where an experienced central Project Unit had developed over time, and which in effect subcontracted implementation of components to "sub-PIUs" in implementing agencies. This was not without problems of coordination, but access was apparently well established. Although the Ecuador project had this formal access, the PIU was housed in a separate building with a separate budget, causing jealousy in the main MOE and weakening cooperation and, presumably, access.

A variety of patterns characterize those projects rated as Fair or Poor. The PIU Director in the Dominican Republic II project was reported to have had "low status," and had difficulty achieving coordination. In the first Honduras project the PIU director reported to the Higher Education Planning Council, apparently without direct access to line decisionmakers at a high level. In Mauritania I the Project Director was a part-time post for a senior Ministry of Education official. Implementation was the responsibility of expatriate deputies in the first three years of the project; these were unable to work effectively with the Mauritanian system. Implementation improved when a local deputy was appointed. In Peru I the PIU Director reported through an intermediate administrative layer to the Vice-Minister of Education. Frequent turnover in this layer hindered access. The PIU for the two Colombia projects was set up in the semi-autonomous Schools Construction Agency to avoid political
influence. This stratagem failed completely, leading to very high turnover and weak access to line decisionmakers.

Lessons: Access seems to be strengthened by arrangements which:
(1) provide direct contact at high levels to several key agencies; (2) provide, or fall into, a situation where a PIU Director is promoted ahead of the unit, increasing access through personal advancement; and/or (3) provide direct access to the Minister or Permanent Secretary.

Patterns that don’t seem to work so well include: (1) low status for the PIU Director; and (2) intermediate layers of bureaucracy. The expatriate project manager model may or may not work, probably depending on the degree to which the expatriate can adjust to, and be accepted by, the host administrative and cultural system.

(B) Coordination Control
All of the projects in category I were rated Fair or Good on this factor; only one of the nine on category II was so rated. Clearly, effective coordination is a component of good management performance.

Effective coordination is a multi-faceted task, and thus depends on each of the other three management systems factors -- access, staffing and continuity. In addition, however, coordination can be strengthened through specific mechanisms and strategies, and the extent to which these were present in the projects studied, and their nature, is of considerable interest.

Coordination was a particular challenge for the first Haïti project. The integration of the rural education system of the Ministry of Agriculture and Rural Development into the Education Ministry was a major goal of the reform supported by the Bank project. The access structure of the project, including the appointment by the two key Ministers of senior liaison officers was an important and successful coordination mechanism. In addition, the project supported salary incentives for PIU staff, and allowed the PIU to use a significant portion of the technical assistance budget for local technical support activities. These included seminars on the integration process for the staffs of the two ministries. The ability to use Bank funds in this manner appears to have contributed significantly to effective coordination.

The effectiveness of coordination increased over time in the four Ethiopia projects. In the beginning, the new PIU had some difficulty establishing control over cooperating units within the Ministry. In the second project the PIU moved to the Rural Projects Agency, leaving the procurement function behind in the MOE. This led to weak coordination in the short-run. A liaison group of agricultural educators established within the Ministry of Education was reported as effective. By the third and fourth project coordination patterns had been successfully established.

The degree of PIU budgetary control over implementing units is not clear from the completion reports, although presumably some control was present. The personal role of the PIU director in establishing effective linkages with implementing units was cited in reviews of the first and third project as central to effective coordination.
The PIU for Philippines II encountered significant problems in seeking to establish coordination with employers and other groups associated with the technical/vocational components of the project. Boards and advisory committees intended for this purpose failed to work, in part because of lack of legal status. Similar problems with coordinating boards/committees were encountered in the Congo, Thailand, Mauritania, Peru and Colombia projects. The PIU in the third Philippine project had funding control of decentralized units, including the curriculum development centers and regional staff development centers. This control was helpful in the first case. In the second, Ministry decentralization policy changes removed the staff development centers from PIU administrative control, although they continued to be funded from project budgets.

The third project also successfully developed a major organizational unit, the Textbook Board, within the framework of the PIU, and then transferred it intact to the Ministry. The paper procurement function of the Board had to be reabsorbed by the PIU at one point, but otherwise this planned form of coordination was successful.

This project also encountered problems in coordinating the sequential tasks of textbook development and production, in part because of a multi-tiered system of approvals for printing contracts, involving the Bank as well as several layers of administration in the country.

In the Yemen, good coordination was the result of the effective personal role of the PIU director.

Projects rated Poor on this factor had a number of characteristics. With the exception of the Thailand IV project, there appears to have been little specific planning for coordination control mechanisms. In that project, the Central Project Unit established sub-units to carry out portions of the project. Roles for the respective units were specified during appraisal. However a reorganization of the Adult Education Division led to the dispersal of the PIU staff across a number of functions, weakening implementation of this component.

The adult education component encountered severe problems in coordinating nonformal education units at local, provincial, regional and national levels. Roles of these units were not fully developed at appraisal; in particular, mechanisms for budgetary and administrative control of lower units by higher ones were not established. This led to uncoordinated and duplicative activities.

In the Mauritania project, the Koranic Schools study -- a principal and innovative project component -- was established in the joint custody of two agencies, the Ministries of Education and of Islamic Affairs. These two ministries both had education systems; the relationships between them were characterized as adversarial. In consequence, neither would assume responsibility to support the study, with negative consequences.

Staff turnover and weak access hindered coordination in the Honduras, Congo and Colombia projects. Lack of PIU budgetary control over implementing agencies was cited specifically for the Honduras project. Expatriate management in Mauritania was not effective, the unit in Peru was too small and faced an
intermediate administrative layer. In Ecuador the physical isolation of the PIU weakened cooperation with the Ministry of Education. Explicit mechanisms for coordination appear lacking in all of these projects, except for Honduras where liaison officers were appointed but were not effective because of the lack of PIU budgetary control.

Lessons: Coordination control appears to be strengthened significantly by the creation of explicit mechanisms with key characteristics. One is multiple access to top decision-makers in key agencies. Second is budgetary as well as administrative control of implementing units by the PIU. Where vertical coordination of project institutions is expected, clear administrative and funding control should be built into the relationships. The availability to the PIU of funds to support a variety of activities to promote coordination worked well in Haiti, and is worth exploration in other projects. An effective personal role in coordination by the PIU director was significant in at least two projects, indicating that training of PIU directors in coordination might be helpful.

Liaison officers appear to work when appointed within a context of multiple access and high level support, as in Haiti, but not when associated with a weak PIU with no budget control (Honduras).

The strategy of developing a unit within the framework of the PIU, then transferring it to a new Ministry for implementation, seems to have worked reasonably well, both in the Philippines and Ethiopia. In both cases, however, procurement as a function proved problematic (although in different ways), indicating that such moves need to be carefully planned with respect to phasing.

Clearly, shared control of one project component by agencies with real or potentially adversarial relationships (i.e., competition for control of resources) is risky.

The strategy of creating coordinating boards to link various interest groups with technical/vocational projects failed in every case where it was attempted. The whole concept needs rethinking if it is to be used further, including the degree to which such bodies can be given authority and/or resources without fragmenting project management. The Haiti experience of PIU funding of local activities might offer promise in this regard.

Finally, given the experience in projects with weak coordination control, it seems evident that development of situation-specific mechanisms for coordination which give an appropriate level of control to the PIU is desirable. Where such mechanisms are not feasible in the project's administrative or political environment, the Bank should anticipate coordination difficulties.

(C) Staffing and Skills
The adequacy of PIU staffing -- in numbers and in skills -- is clearly an important factor in management performance: all projects rated as Good or better on performance were rated as Good on staffing and skills, while only three of the nine projects rated Fair and none of the projects rated Poor were so rated. Of the eight projects rated Poor on coordination control, six were
also rated Poor on staffing. The quality of staffing is also related to access: all of the projects with Poor access also had Poor staffing.

Bank projects involve common tasks to a remarkable degree: construction and maintenance of civil works, equipment procurement and distribution, and curriculum development and staff training. The staffing complement of a PIU should, in general, be adequate in number and skills to handle these tasks for a project of a given size and complexity.

The eight projects rated as Good on this factor tended to meet this criterion, although they did so in different ways. The Haiti project used salary incentives to attract and motivate staff, both in the PIU and in project institutions. Technical assistance (TA) was well used, and limited observation tours for managers under the fellowship program were helpful. This unit performed very well on International Competitive Bidding (ICB).

The Ethiopian PIU began with a staff comprised of a Manager, an architect provided through technical assistance, a technical educator and support staff. As it grew it organized by functional teams (construction, maintenance and land acquisition). Operating expenses for the PIU were provided in the Third and Fourth Projects. The PIU continued to have difficulty with ICB and with supervision of remote sites as late as the fourth project despite skilled staff.

The planned use of expatriate technical advisors for a series of studies in the third project caused some problems. The government opposed this approach due to a reluctance to have such a large foreign input. Although the studies component and associated TA were later reduced, the government still found too much foreign input; the studies were only partially utilized.

The PIU in the Philippines grew rapidly to a unit of over 100 professional staff. TA resources in the second project were reconfigured by the government to emphasize hiring of qualified local expertise, leading to cost savings which permitted the further expansion of an already large fellowship program.

Technical assistance was helpful to the development of the staff of the Yemen PIU. The staffing was not fully adequate to the task of supervising construction, however.

Two expatriate TA staff performed effectively in the Congo PIU, although problems were encountered with TA in project institutions due, in part, to the fact that experts were recruited individually. A team with a leader might have been more effective.

The six projects rated as Poor on staffing had different kinds of problems. The government in the Dominican Republic rejected Bank advice to increase PIU salaries during the project, perpetuating the low status of and high turnover in the unit. The Colombia and Honduras teams were weakened by part-time status and the failure to appoint a project educator in the latter. The Honduran government, after a disagreement with the Bank on selection of candidates, did not use the fellowship component, nor was the one year of TA provided for the PIU utilized. A similar pattern was encountered in the Peru project, where TA and training components were reduced and no full-time educator
appointed. Staff numbers were insufficient for construction supervision in Colombia and Peru. A similar problem emerged in Ecuador when the government refused to agree to increased fees from contract firms providing supervision services and assumed the burden itself without proper staffing.

Two posts for expatriate technical staff for the Mauritanian project were not filled for a large part of the project (educator and architect). This led to serious gaps in supervision of project components.

Lessons: Good staffing seems to be characterized by positions for each of the basic technical functions, and use of long-term TA early in the development of PIUs with a decrease thereafter. Fellowship resources also seem to be helpful. It is notable that in the Ethiopian and Philippine settings rapid evolution towards the use of local expertise helped in the development of institutional capacity. Although the completion reports do not provide a great deal of detail in these areas, these projects seem to be characterized by relatively strong local management teams with the ability to use both TA and fellowship resources in a relatively organized way.

Each of these projects was also characterized by good access. High level support of this type undoubtedly contributed to the ability of the PIU to attract good staff and to manage TA with a sense of confidence and control.

It is also worth noting the use of salary incentives in Haiti. While this strategy might not work in other environments, it did seem to increase cooperation and motivation in this particular project.

The problematic projects seem to have in common a reluctance or inability to use project resources (TA and fellowship resources, salary support) effectively in building a staff. The data do not tell us if planning for the phased use of such resources was included in project planning and appraisal. If not, the difficulties observed may have been caused by a general reluctance to accept "foreign" help. If so, the problems may be more idiosyncratic and less amenable to generalization.

All but one of these projects (Peru) had Poor access (Peru was rated as Fair). Under such circumstances it may be very difficult, if not impossible, to attract enough skilled technical and managerial staff to the project.

(D) Continuity
Staff continuity was good in the management of six of the seven projects rated as Good on management performance; Fair in the Philippines II project. In that project PIU jobs were categorized as temporary, leading to turnover as staff sought better job security elsewhere.

All of the projects rated as Good on the continuity factor also rated Good in access. Thus access seems associated with continuity as well as staff numbers and skills.

The use of salary incentives in the Haiti project no doubt contributed to continuity, as did the availability of project operating funds for the third and fourth Ethiopia projects.
The Thailand project was rated Good on access, but only Fair on continuity. In this case, however, the difficulty came not with losing good staff but rather with their reassignment to other duties as part of government reorganization. Continuity in the Congo project was rated Fair due to difficulties in recruiting expatriate managers and, to some extent, turnover in the part-time local project director post due to political changes in the government.

Continuity in the Ecuador, Peru and Colombia projects at the PIU director level was poor, due in all cases to frequent changes in governments and attendant changes in senior management. Efforts to isolate the PIUs from such effects through a semi-autonomous agency in Colombia and an intervening level of administration in Peru failed.

The Mauritania project had, as noted earlier, serious problems with turnover of expatriate management staff due to their inability to function well in the Mauritanian context.

Lack of management continuity hurt all of these projects. It made it difficult to build expertise in such areas as ICB.

Lessons: Continuity seems to be an effect of good access and stable political environments. The mechanisms attempted to insulate PIU management from political changes did not seem to function well. It is questionable whether indeed such insulation is possible in many circumstances, raising the need for the Bank to consider how to deal with continuity problems in politically unstable environments.

3. Operational Management Variables

This component of the model encompasses three factors associated with the implementation, or "operational management," of projects. These are conceptualized as outcomes of the performance of the management system, mediating from system performance to management performance.

The first of these is "input management," which covers the use of project inputs -- civil works, equipment, TA and training. The second is "monitoring," which incorporates Borrower monitoring of project progress and Bank monitoring and supervision. The third is "interaction with the Bank," which focuses on the nature of the relationship between the Borrower and the Bank during implementation.

The ratings on these variables are added to the factor set in Table 3.
### Table 3: Management System, Operational Management, and Management Performance

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>Cost (Smil)</th>
<th>ENVIRONMENT VARIABLES</th>
<th>PROJECT DESIGN VARIABLES</th>
<th>MANAGEMENT SYSTEM VARIABLES</th>
<th>OPERATIONAL MANAGEMENT</th>
<th>MANAGEMENT PERFORMANCE</th>
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<td>Poor/ Good/ Good</td>
<td>Good</td>
</tr>
<tr>
<td>Philippines II</td>
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<td>Good</td>
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<td>Poor/ Good/ Good</td>
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<tr>
<td>Philippines III</td>
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<td>Poor</td>
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The immediate and perhaps most startling observation from these data is that, with the single exception of the fourth Ethiopia project, every project encountered sufficient difficulty with input management to be rated "Poor." The Ethiopia IV project, the only one to be completed on schedule, received a rating of Fair, indicating that a strong and experienced PIU was still having difficulties in this area. These findings are further consistent with the fact that all but the Ethiopia IV project were completed behind schedule.

It seems apparent, given that projects which are completed behind schedule and are otherwise strong are rated as Good or Very Good, and that all but one of the projects -- regardless of management performance -- encountered problems managing inputs, that on-time input management is not a principal criterion of success in the Bank. This further leads to speculation as to the desirability of continuing to force civil works and procurement components into time frames which manifestly cannot be met. It seems possible, at least, that smaller components, better phasing over longer periods of time, or both, would be more realistic. The Bank has in fact addressed this problem directly by lending later in the project cycle, with reportedly good effect.

There also seems to be an association between the quality of monitoring and the quality of management performance. All of the seven projects rated Good or better on performance were rated as Fair or Good on monitoring. Conversely, of the nine projects in category II, five were rated Poor on monitoring.

In addition, all of the projects in category I were rated as Good on Interaction with the Bank, while only three of the eight on which there is data were so rated in category II (and two of these three were also rated Good on Monitoring).

The conclusion one draws from this is that Bank/project interaction is good where: (a) the project is performing well; and (b) the project is not performing so well but is well-monitored. The fact that these data only allow us to establish the most general associations, of course, permits an alternative explanation: that good relationships between the Bank and Borrower lead to good monitoring. In fact, the relationship probably flows both ways.

The strength of the relationships between Management Systems Variables, delays in project completion, and ratings of management performance indicates that good relationships do not necessarily lead to high performance assessments. While all projects in category I were characterized by good interaction, five of the nine in category II were rated as Good (3) or Fair (2). This indicates that it is possible to have reasonably good interaction without performance rated as "Good" or "Very good." It is clear that Bank/Borrower interaction in projects rated as Poor is Poor as well, and that Poor monitoring goes with Poor performance.

The overall pattern of ratings across the three components reveals a reasonably consistent pattern. With the exception of the Ethiopia I and Thailand IV projects, and possibly the Congo I project, the projects in category II are generally weak on most management system and operational management variables. Obviously, the weaker the management system, the weaker the operational management performance.
It is also the case that four of the five Latin America projects were rated as Poor on monitoring, and three of five Poor on Bank interaction (data are not available on the Honduras project). This is consistent with efforts of the Latin America Regional office in the years following these projects to improve project supervision and management, efforts which appear to be paying off in the case of the most recent Latin American project reviewed, the Haiti project.

(A) Input Management

All but the one Ethiopia project encountered problems and delays in managing the sequential tasks of construction and equipment procurement and distribution. The causes of the problems were various. Lack of experience in ICB procedures was a factor in Ethiopia I, Philippines II, Thailand IV (adult education subunit), Mauritania I, Peru I, Ecuador I, and Colombia I -- in short in all new projects or project components except for Haiti I and Congo I. Even in these case there were delays which might have been ameliorated by better procurement expertise.

The areas where more expertise would have been helpful included the development of specifications, tendering, and contract management.

In nine of the seventeen projects delays or gaps in government counterpart funds limited building maintenance. In the Philippines, counterpart funding gaps hampered the full institutionalization of the textbook delivery system at the local level.

Lengthy approvals for contracts delayed activity in the Philippines III and Haiti projects.

Several projects, including Ethiopia II and III, and Dominican Republic II faced uncoordinated equipment/construction schedules due to delays in construction, leading to the need for storage of equipment, and consequent losses.

These problems seem inherent in the basic Bank model of asking public construction agencies to manage complex procurement and construction tasks. And the Bank seems prepared, if necessary, to accept delays of two to three years.

The use of TA resources was of some interest. As PIUs grew larger and stronger, there was a noted tendency to renegotiate use of expatriate TA with the Bank, using funds saved for local expertise and to expand other project components, including construction (Ethiopia II and III) and fellowship training (Philippines III). TA seemed better used in first projects than in subsequent efforts.

The difficulties with the TA component in the Mauritania project have been discussed in other sections. Clearly, the tasks and context for advisors in that project were not realistic.

On the positive side, it is important to note the success of project management in Ethiopia in developing local construction techniques which reduced costs considerably, permitting further expansion of school construction. The success of the later projects in mobilizing community support for school construction and maintenance is also notable.
Lessons: A certain level of difficulty can be expected in large scale projects with complex inter-related sequential tasks, PERT charts notwithstanding. And the Bank seems, implicitly at least, to recognize this.

At the same time, thorough training of PIU staff in ICB procedures seems an obvious improvement (one which has been made by some education project divisions). There seems little reason why such training could not be extended to include contract management and the development of specifications. ICB procedures and related technical skills are largely standardized, packageable in manuals, and transferable through training.

There seems to be little that the Bank can do with respect to delivery of counterpart funds given environmental instability in many countries. There may be ways to "modularize" project components in such a way that lack of counterpart funds reduces the number of units built or purchased, rather than eliminating maintenance for all.

(B) Monitoring

Bank supervision in category I projects was largely effective. In the Haiti project in particular, supervision was intensive in the early phases of the project, and was marked by an unusual degree of continuity on the part of the Bank (the same architect participated in all 13 supervision missions). Even so, internal project monitoring failed to detect problems with the adult education component as early as would have been wished.

The Ethiopia projects also noted the value of Bank supervision in helping develop PIU capacity; the completion report for the Third Project noted that even more TA "in the guise of supervision" would have been helpful. The Ethiopia projects continually struggled internally with the problems of monitoring remote sites under conditions of civil unrest.

The category II projects with Fair and Poor ratings (six of nine) encountered problems in this area. Bank supervision in the Dominican Republic II, Honduras I, Peru I and Ecuador I projects was erratic early in the projects and missions often lacked appropriate technical skills. The projects being supervised had weak management systems and had trouble monitoring their own progress. This combination weakened all projects to some extent, and reached a climax with the Ecuador project, where the Bank sent a premature completion mission based on erroneous reports that construction was largely completed. The project was then extended for two years and supervision intensified.

The Project Completion Report (PCR) for the Dominican Republic II project noted specifically that inadequate supervision prevented proper briefing of the many PIU Directors occasioned by high staff turnover, with negative consequences for management of ICB.

The need for more intensive monitoring early in the project was noted in the Congo project, as well as the need for better supervision of innovative project institutions. High turnover of PIU staff hampered efforts to develop a database for the Colombia project.
Lessons: Bank supervision can be a major positive factor in project management if: (1) it is scheduled to fit with the nature of the project and the capabilities/needs of the PIU; (2) missions are staffed with persons of appropriate technical backgrounds; (3) there is some degree of continuity on the Bank's part; and (4) the Bank remains flexible enough to mount supervision/TA missions when needs appear.

In short, the purposes and tasks of supervision should be planned as a major component of the project. While schedules and staff composition would inevitably change, the very act of planning for supervision in collaboration with the Borrower might lead to better focus on the positive aspects of supervision.

(C) Interaction With the Bank

As demonstrated in the ten projects rated Good on this factor, positive relationships can be established between the Bank and the Borrower, even under difficult circumstances. Such a relationship contributed significantly to the evolution of the four Ethiopia projects. While the Bank sought to enforce its positions on project components during negotiations (Ethiopia II and III), it proved quite flexible and supportive of government desires to modify projects enroute. This led to growing mutual confidence and supported the autonomy and development of project management institutions. Similarly, with the Philippine projects, the PIU engaged in substantive and procedural disputes with the Bank, with the Bank acceding to government positions. The generally helpful and supportive attitude of Bank staff was cited as a positive factor in both the Yemen and Mauritania projects.

In five of the projects reviewed, however, interaction was less positive and effective. The Thai government was not responsive to serious Bank concerns regarding project management and the fellowship program; protracted disagreement over the shape of the project during preparation appears to have contributed to the government attitude. A similar situation occurred with the Colombia project.

In the Dominican Republic, Peru and Ecuador projects both the Borrowers and the Bank were unresponsive to issues raised by the other side. That these projects were experiencing major difficulties no doubt contributed to the tension in the relationships.

Lessons: Good relationships are easier, of course, when projects are working well. However, they can be established even when projects are encountering difficulty, and are probably most needed under those circumstances. Explicit planning of the role of Bank supervision and assistance with project management (as recommended above) might help establish effective working relationships; so too would continuity on the part of the Bank in supervision.

The most important lesson is that good relationships, defined as Bank flexibility and government responsiveness, seem to be helpful (though certainly not sufficient) in building Borrower management capabilities.

4. Project Design Variables

The nature of the tasks to be performed should have something to do with management success. Indeed, a principal concern in project preparation is the fit between the management requirements of the project and the capabilities of the Borrower.
Our review identified four dimensions of projects which have implications for project management. These are: (1) the degree of consensus between the Bank and the government on the goals and strategies of the project (Goal/Means Agreement); (2) the complexity of the project, with consequent coordination demands (Complexity and Coordination); (3) the degree of innovation in project strategies and institutions, and the corresponding issue of demand for new educational services (Innovation and Demand); and (4) the level of institutional development required by the project.

The ratings for these factors are added to the factor table in Table 4.

The patterns offer some support for the idea that more complex projects, as measured by the four design variables, require stronger management.
<table>
<thead>
<tr>
<th>PROJECT</th>
<th>Cost ($mil)</th>
<th>Environment Variables</th>
<th>Project Design Variables</th>
<th>Management System Variables</th>
<th>Operational Management</th>
<th>Management Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haiti I</td>
<td>6.5</td>
<td>Good Stability</td>
<td>Mod</td>
<td>Good</td>
<td>Poor</td>
<td>Fair</td>
</tr>
<tr>
<td>Ethiopia IV</td>
<td>30.2</td>
<td>Good Stability</td>
<td>High Mod Low</td>
<td>Good</td>
<td>Good</td>
<td>Fair</td>
</tr>
<tr>
<td>Ethiopia III</td>
<td>12.7</td>
<td>Fair</td>
<td>High Mod Low</td>
<td>Good</td>
<td>Poor</td>
<td>Fair</td>
</tr>
<tr>
<td>Ethiopia II</td>
<td>14.6</td>
<td>Poor</td>
<td>High Mod High</td>
<td>Good</td>
<td>Poor</td>
<td>Fair</td>
</tr>
<tr>
<td>Philippines II</td>
<td>21.4</td>
<td>Good</td>
<td>High High High</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Philippines III</td>
<td>24.7</td>
<td>Good</td>
<td>High Mod Low</td>
<td>Good</td>
<td>Good</td>
<td>Fair</td>
</tr>
<tr>
<td>Yemen I</td>
<td>8.7</td>
<td>Poor</td>
<td>High High High</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Ethiopia I</td>
<td>11.0</td>
<td>Good</td>
<td>High Mod Mod</td>
<td>Good</td>
<td>Poor</td>
<td>Fair</td>
</tr>
<tr>
<td>Thailand IV</td>
<td>60.3</td>
<td>Poor</td>
<td>High High High</td>
<td>Good</td>
<td>Poor</td>
<td>Fair</td>
</tr>
<tr>
<td>Congo I</td>
<td>4.7</td>
<td>Poor</td>
<td>High High Mod</td>
<td>Good</td>
<td>Poor</td>
<td>Fair</td>
</tr>
<tr>
<td>Dom. Rep. II</td>
<td>14.2</td>
<td>Poor</td>
<td>High Mod High</td>
<td>Good</td>
<td>Poor</td>
<td>Fair</td>
</tr>
<tr>
<td>Honduras I</td>
<td>10.4</td>
<td>Good</td>
<td>High Mod Mod</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
</tr>
<tr>
<td>Mauritania I</td>
<td>3.8</td>
<td>Good</td>
<td>High High High</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
</tr>
<tr>
<td>Peru I</td>
<td>37.5</td>
<td>Poor</td>
<td>High High High</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
</tr>
<tr>
<td>Ecuador I</td>
<td>16.1</td>
<td>Good</td>
<td>High High High</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
</tr>
<tr>
<td>Colombia I, II</td>
<td>25.0</td>
<td>Poor</td>
<td>High High High</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
</tr>
</tbody>
</table>
Only two of the seven projects rated as Good or Very Good on management performance were rated high on all three factors: complexity, innovation and institutional development need (Philippines II and Yemen I). Both of these projects were characterized by strong management systems, with three of four and four of four management systems variables rated as "Good" respectively. The implication, of course, is that good management performance is likely when projects either: (1) are relatively low on one of these three design factors, or (2) have strong management systems if they are high on all three.

In contrast, five of the nine projects rated Fair or Poor were rated High on all three of these variables, including both projects whose performance was rated as Poor. One of these five, Thailand IV, was rated a Good on two of the four management systems variables. Two of the remaining four were rated Poor on all four (Mauritania I and Colombia I, II); two were rated Poor on three of the four variables. These patterns support the notion that complex projects, with high levels of innovation and high needs for institutional development, fare poorly with weak management systems.

Thus the need for particular attention to strong management systems is in part contingent on the relative degree of complexity, innovation and institution building in a project. This makes sense, and may also alert project designers to some important management design issues.

The level of Goal/Means agreement at project inception has a less clear relationship with project performance. We note that Fair or problematic agreement characterizes three of the eight projects in category I; five of the nine in category II. This would seem to indicate the value of strong management systems in accommodating initial disagreements.

Projects with Fair or problematic Goal/Means agreement and High ratings on the other three design variables are of particular interest. One would expect these projects to encounter the most difficult management problems.

There were four of these projects, one rated as Good on Management Performance, two rated Fair, and one rated Poor. The project rated Good (Yemen I), was also rated as Good on all four management systems variables and both Monitoring and Interaction. Of the other three, only the Thailand project was rated Good on as many as two management systems variables. It was also rated Good and Fair on Monitoring and Interaction. The remaining two, Peru and Colombia, were rated Poor on Monitoring and Interaction.

These patterns indicate that such projects do indeed require strong management systems as well as good monitoring and interaction with the Bank if good management performance is to occur.

Finally, it is interesting to note that only the fourth Ethiopia project was rated Low or Moderate on two of these three variables: Complexity, Innovation and Institution-building needs. This project was the only one completed on time; it was also characterized by a high level of Goal/Means agreement.
(A) **Goal/Means Agreement**

Less than good agreement on goals and means was encountered in eight of the seventeen projects. The differences fall rather neatly into two categories. The first includes disagreements between the government and the Bank over the goals of the project, and the educational policy that the goals imply. The second has to do with differences on the implementation capacity of the government.

In three projects (Ethiopia II, Yemen I and Colombia I, II) the Bank strongly supported establishment or expansion of vocational/technical education to strengthen mid-level manpower. This emphasis reflected overall Bank sector lending policy. The Ethiopian government believed that rapid expansion of the general secondary component to increase equity of access was more important. The government was also uncertain about the feasibility of the Rural Education institutes introduced by the Bank. The Bank also insisted on the inclusion of a large component of policy research to be carried out largely by expatriate TA. The government was reluctant to accept such a large external input into policy analysis.

After three years of discussions, a compromise was reached at negotiations. The government then successfully redesigned the project during implementation, reducing the studies' TA and using these savings, plus others generated through efficient construction techniques, to expand the general secondary component. The Bank was flexible and supportive of these design changes. Project management was strong and able to handle design changes effectively. The government, in effect, modified the project to approximate its original desires.

In the Yemen, the government accepted a compromise on the vocational component, which was implemented as planned. The lack of agreement at the outset did not affect project implementation.

The Colombia project was begun with disagreement over the technical/vocational emphasis. Government support in the first years was weak, exacerbated by a high level of political change. The project did not get on track until a new government began to provide support after nearly four years had elapsed. Interaction between the Bank and the government was poor during most of this early period.

The Thai government began the fourth project seeking to expand educational radio and television. This did not meet with strong Bank support. Lengthy negotiations ensued, with the Government withdrawing the project at one point. The final large omnibus project included an educational radio component. Although Bank/Borrower interactions were problematic during much of the project, it is difficult to see if initial disagreements were a major factor.

In the Honduras project, agreement on goals was substantial; however, during implementation one of the innovations introduced -- a "sandwich" model of education/industry cooperation in vocational training -- was rejected as "alien" to the Honduran context.

The government of the Congo wanted a larger rural vocational training component than Bank staff thought feasible, given the complexity of institutional arrangements required for coordination. The Bank and the
government agreed to a reduced component, which encountered severe coordination problems as predicted by the Bank.

On a much larger scale, the Bank had serious misgivings about the capacity of the Peruvian government to implement the large scale reform project supported by Peru I. The Borrower was able to persuade the Bank of its capabilities; the Bank was shown by experience to have been correct in its original assessments.

The Bank and the government collaborated in the reduction and simplification of the Mauritania project immediately after negotiation in recognition of limited implementation capacity.

Lessons: Policy disagreements in project formulation need not threaten project success if: (1) project management is strong, and (2) if the Bank is flexible in supporting enroute changes.

However, disagreement of this type can affect government support for the project and weaken Bank/Borrower interaction. When Bank lending policy must prevail over local goals and policies, it would seem wise to pay particular attention to the creation of a strong management team. The Bank might also consider the possibility of change during implementation and be prepared to be supportive and flexible if such changes seem justified and viable.

Bank misgivings about implementation capacity need to be taken seriously, particularly in the case of first efforts, as shown by the Peru, Congo and Mauritania projects.

(B) Complexity and Coordination

As noted previously, a high level of complexity was a characteristic of all the projects rated Fair or Poor on performance, yet three of the eight rated Good or Very Good were rated as moderate on this factor. At the same time, five projects rated High on complexity performed well (four of these were followup projects). Clearly, complexity alone is not a predictor of management performance.

In rating the complexity of projects a number of factors were taken into account: among them, the number of ministries or other major agencies involved ("primary organizational units"), the number of levels of education, the number of sectors and the geographical dispersion of project components. Additional elements of complexity included the degree of decentralization of educational authority, and the need to establish coordination relationships with other groups in societies, such as employers and trade unions for vocational projects.

As indicated in the review of coordination control as a management system variable, certain projects established coordination mechanisms which worked; other projects established mechanisms which did not work. Given that complexity is the norm rather than the exception in Bank education projects it is useful to examine a number of these factors together.

Table 5 presents a number of factors related to both project complexity and the success of management in achieving coordination.
<table>
<thead>
<tr>
<th>PROJECT</th>
<th>Primary Organiz. Units</th>
<th>Other Factors</th>
<th>Comp Rating</th>
<th>Coord Control Rating</th>
<th>Coordination Mechanisms</th>
<th>Management Performance</th>
</tr>
</thead>
</table>
| Haiti      | 2                      | Integrate MOE & MOA                                                           | Mod         | Good                 | - Access  
- Liaison Off.  
- Salary Inc.  
- Local $ Use                                                        | Good        |
| Ethiopia   | IV                     |                                                                               | High        | Good                 | - Access  
- Continuity  
- Personal Role  
- Gradual increase in complexity                                                | Good        |
|            | III                    |                                                                               | Mod         | Good                 |                                                                         | Good        |
|            | II                     |                                                                               | High        | Good                 |                                                                         | Good        |
|            | I                      |                                                                               | High        | Fair                 |                                                                         | Fair        |
| Phil II    | 1                      | Regional & Prov. Univ. Decentralized educ. admin. Employer and other private sector groups | High        | Fair                 | - Unit roles defined, but no admin/budget relations specified  
- PIU sub-units reorganized                                                       | Good        |
| Phil III   | 1                      |                                                                               | High        | Good                 | - Access  
- Continuity  
- Coord Boards (fail)                                                        | Good        |
| Yemen      | 4                      |                                                                               | High        | Good                 | - Access  
- Personal Role                                                            | Good        |
| Thailand   | 1                      | Many components High need for vertical coord                                  | High        | Fair                 | - PIU Director w/out power  
- Poor access  
- Low salaries                                                        | Fair        |
| Dominican Republic | 3                          | Includes independent Nat Voc Center                                           | High        | Poor                 | - Poor access  
- PIU no budget control  
- Liaison off. fail                                                        | Fair        |
| Honduras   | 3                      | Nat Voc Center                                                                | High        | Poor                 |                                                                         | Fair        |
| Congo      | 1                      | Employer/Union groups                                                         | High        | Poor                 | - Coord Boards (fail)                                                       | Fair        |
| Mauritania | 2                      | Competing Ministries Employers                                                | High        | Poor                 | - Coord Boards (fail)                                                       | Fair        |
| Peru       | 1                      | Geographic expansion                                                          | High        | Poor                 | - Coord Boards (fail)                                                       | Fair        |
| Ecuador    | 2                      | PIU not tied to MOE                                                            | High        | Poor                 | - none  
                                                                         | Poor        |
| Colombia   | 1                      | Linkages with universities, employers, voc training centers                    | High        | Poor                 | - Coord Boards (fail)                                                       | Poor        |
The Haiti, Ethiopia, Philippines and Yemen projects stand out for a number of reasons. First, all were rated Good on management performance and involved multiple organizational units. (The Ethiopia I project is included in this group because it marks the beginning of a project sequence characterized by increasingly good management). All were rated Good or Fair on coordination control. The balance of the projects differ from this group in a number of ways, either on performance ratings (Thailand) or the number of organizational units involved (Solomon Islands, Congo, Peru, Colombia), or both.

Not surprisingly, all of the projects in the first group were characterized by good access to decisionmakers. A number of specific mechanisms in the project management system strengthened coordination. The Haiti project was notable in this respect. Access was strengthened by placing the PIU physically in the Ministry of Education while having it report to the National Council on Development and Planning. Senior liaison officers were appointed to the PIU by the Ministers of Education and Agriculture, whose educational programs were to be integrated in the MOE. Salary incentives supported the appointment and effectiveness of senior staff, and probably further emphasized the significance of the integration task. That the PIU had use of TA funds to support local activities supportive of coordination was also important.

A somewhat different pattern emerged with the Ethiopia projects. Fundamentally important was the gradual increase in complexity of the projects over time as management capacity increased. Access and staff continuity played important roles. The PIU was located in the gradually expanding national construction agency, where it had control of major inputs. Interestingly, the major coordination problem encountered came when control of equipment was separated from control of public works in the second project. The personal role of the first PIU Director in establishing good coordination was cited; as will be recalled, he was promoted ahead of subsequent projects in the construction agency.

With the two Philippine projects we begin encountering the failure of coordinating boards set up to link project education components with various other groups -- employers, trade unions, private sector firms. These failed to work in the Philippines, Congo, Mauritania, Peru and Colombia.

Access and the personal role of the PIU Director were positive factors in the Yemen project as well.

Of the projects in group two, the Thai and Honduras projects stand out as the only ones where specific coordination mechanisms appear to have been attempted. In the Thai case vertical coordination of project institutions -- the four levels of nonformal education -- was a major challenge. Roles for these levels were specified during project planning. However, formal budgetary and administrative control relationships were not, contributing to coordination problems. The project was so complex that "sub-PIUs" had to be set up. The one for the nonformal component was reorganized during the project, as discussed earlier. This further hampered coordination.

The PIU in the Honduras project was generally weak. It lacked status and budgetary control over implementing units. Perhaps because of this, the strategy of appointing liaison officers failed.
It is useful to note from the case data that coordination between the PIU and universities or colleges implementing project components was problematic throughout the projects studied. Coordinating the output of teacher training colleges was difficult in the first Ethiopia project; regional colleges and university-based curriculum centers in the Philippines projects were difficult to manage; in the Colombia and Peru projects articulation between vocational schools and universities on the matter of university entrance standards failed to develop.

The Ecuador project apparently had no planned coordination mechanisms.

Lessons: It seems apparent that good access enhances the probability of coordination. Bank staff should give careful attention to this factor, especially for complex projects involving more than one major implementing unit. Equally fundamental is the notion of phasing complexity over several projects as management capacity develops (as seen in Ethiopia).

The utility of mechanisms which create incentives for coordination has been discussed earlier in the context of coordination control. This broader review, which examines coordination in the light of project complexity, only strengthens the finding that explicit planning for mechanisms can be important. It also reminds us that certain strategies, such as coordinating boards, do not seem to work well.

Complexity alone does not predict project management performance. However, the more complex a project the more important strong management becomes.

(C) Innovation and Demand

Two aspects of this variable were investigated. One was the degree to which project institutions represented innovations to the basic educational system. Since Bank projects are by policy innovative to one degree or another, it was not surprising to find that only three of the projects studied scored low on this factor: Ethiopia IV, Philippines III, and Solomon Islands I. The fourth Ethiopia project rating reflects not so much the absolute level of innovation in the project, but rather the cumulative growth of innovation of the system and the capacity to manage it. The Philippines III project focused on textbook development: the tasks were familiar; the scope of the project was new.

The other projects introduced significant new institutions and forms of education in systems with relatively limited experience with the management of change. In nine of these, the services offered by these new institutions -- primarily vocational and/or technical education -- failed to meet with the anticipated social demand, resulting in low enrollments and in the case of some projects, changes in program objectives in others.

There were a number of causes. Articulation with university entrance was not achieved in the Colombia and Peru projects, causing public distrust of vocational schools as "second best." In Thailand social demand for tertiary education led to pressure on the Diversified Secondary Schools, which responded by reducing the practical content of the curriculum in favor of academic preparation. In the Philippines II project the program objectives of a number of innovative rural components had to be changed to cope with lack of interest
from farmers. The Experimental Agricultural High Schools and technical institutes in this project suffered the same social demand problems that characterized other projects.

In none of these projects is there evidence of planned or reactive management action to generate demand for these vocationally-oriented educational services.

In reviewing this variable we also encountered the capability of a strong management unit to develop innovations, as demonstrated by the success of later Ethiopian projects in developing significant levels of community participation in school construction and maintenance, leading, among other things, to reduced costs.

**Lessons:** Innovation, as an element of complexity, merits special attention in project management design. The data indicate that, beyond assessment of potential demand, projects with innovative institutions should be prepared to generate demand through a range of public education activities. None of the projects encountering demand problems appear to have had mechanisms for this purpose beyond the possible role of "coordinating boards."

This lesson may be difficult for Bank and Borrower alike, both being accustomed to the assumption that what is good for the manpower system will also be seen by individuals as personally desirable. The evidence indicates that this is often not the case.

(D) Institutional Development Needs

All but two of the projects reviewed were rated High on assessed needs for institutional development (relative to project complexity) at initiation. One was the fourth Ethiopia project, where cumulative institution building over three prior projects had resulted in a very strong management capability and relatively well-developed project institutions. The other was the first Congo project, where the project was reduced in complexity at appraisal. These exceptions seem not to be systematically related to management performance, except insofar as they reflect variation on one of four project design variables, and overall patterns among all four do seem to have bearing on performance (as discussed earlier).

There was a reasonably clear distinction in all projects between development of project management capacity on the one hand, and development of the technical and administrative capacities of project institutions on the other. These two types of institution building are, of course, related in important ways. However, projects were not uniform in their emphases on the two needs, and the differences are relevant to management planning and design.

In addition, the projects differed on the types of inputs and mechanisms -- or institution building strategies -- developed, and they differed as well on the outcomes of these strategies.

Analysis of the institutional development components of projects is made difficult by the uneven attention given this factor in Bank completion documents. Although institutional development is a policy objective for Bank projects, the reports reviewed tended to give relatively coherent and analytical attention to this dimension only when notable success was achieved. Thus we have been able to learn more about factors which seem to contribute to
in institutional development -- both for project management and for project institutions -- than about factors which impair the process. Our findings on these later factors are therefore somewhat more speculative.

Fortunately, there were clear instances of successful institutional development. One of the more obvious findings is that all cases of strong institution building were associated with strong management systems as assessed in this study. All of the projects in Category I were characterized by good progress in the development of institutional capacity.

The Haiti I project is a good example. The PCR concluded that "...a considerable institution building effect has been achieved." (Project Performance Performance Appraisal Report (PPAR), p. 3). A number of elements contributed to this outcome. The strong access, coordination control, staffing and continuity that characterized the management system were fundamental. The freedom to use TA funds for local developmental activities was important.

On the other hand, high levels of staff turnover appear to have seriously affected the development of institutional capacity in the Colombia and Ecuador projects. Clearly, the capability of core management and project institution staff is essential if there is to be an "institution" to be developed.

Common to several projects was the strategy of developing project management units under one organizational framework and handing them over to line implementation agencies as capacities developed. In the Haiti project, the PIU was developed first under the administrative authority of the National Council for Development and Planning and housed in the Ministry of Education. As the unit gained strength it was transferred to the administrative control of the Ministry of Education. This strategy gave the PIU independent administrative status during the first phase of the project when the activities of two ministries were integrated into one (the MOE). The appointment to the PIU of senior liaison officers from the two ministries further supported this model, as did (as noted earlier) the use of TA funds for local activities.

Similarly, the Textbook Board in the Philippines Project was developed under the aegis of the project unit (EDPITAF), then transferred to the Ministry of Education for operation. Although some management elements had to be taken back by the PIU for a period of time, the transfer was largely effective. The final stage of evolution of this organizational capacity was to have been the establishment of a para-statal Textbook Corporation. This was delayed at the close of the project when the government declined to issue enabling executive orders.

The strong management capability that developed through the four Ethiopia projects also reflects the base strategy, although it is not clear whether the strategy was planned or evolved. As the initial PIU grew it was absorbed into the evolving national construction agency. Specific organizational elements were created by the PIU in important institutions -- the Educational Materials Production and Distribution Agency in the Ministry of Education, and curriculum development centers in other institutions. A similar approach worked well in the third Philippine project. Taking place over four projects, this evolutionary approach permitted the core management group to develop effective management and technical units as projects expanded in scope and complexity.
In order to carry out the fourth education project, the Thai government established sub-PIUs in different departments of the Ministry of Education to manage large components under the coordination of the Central Project Unit. Although a reorganization in the Adult Education Department created enroute gaps in PIU management for that component, the strategy on the whole seems to have worked well.

The Yemen I project demonstrated a variation of this theme. The PIU reported to the Ministry of Education, but was housed in the Ministry of Construction to facilitate coordination. Project implementation under this model led to recognition by the Bank and the government of the need to strengthen the supervision capacity of the MOC, with action subsequently being taken in this direction.

That this approach to building institutional capacity requires strong core management is further supported by experience with the Honduras I project. There the core PIU was set up as a liaison office, without budgetary control over implementing institutions. Implementation suffered significantly, apparently in part because the central PIU had no resources -- financial or managerial -- to either support or control implementation. It also is reported to have had "low status" (an obvious corollary of "no power.").

There is no evidence of planned institutional development strategies in the bulk of the projects whose performance was rated Fair or Poor.

Projects which have been successful in developing institutional capacity have also given attention to the development of staff capabilities. Bank technical assistance and fellowship resources have been used to support this in a number of ways. In the Yemen I project, the government and the Bank agreed that institutional capacity was weak at initiation. Long-term technical assistance was provided to the PIU and project institutions, and worked well to carry out project components and contribute to staff development. In the Philippine and Ethiopia projects the governments shifted rapidly in the project sequence to use TA resources earmarked for expatriate advisors for local expertise. These resources, in turn, were used to engage relatively large numbers of local experts in project implementation -- providing a significant level of on-the-job learning as well as strong connections with local conditions and capabilities.

Fellowship resources in the Philippine project were relatively large, although the extent to which fellowship training contributed directly to institutional development is not clear. Fellowship resource use in the Ethiopia projects was much lower, and some difficulty was encountered in having candidates return to anticipated roles.

Similarly, the fellowship training component in the Thai project had mixed success. External training for 100 administrators of the diversified secondary schools was quite successful. Long-term degree fellowships for the staff of the Adult Education Division were more problematic; only four of twelve candidates were in anticipated posts at the end of the project, the others either continuing their studies, working in different roles, or having left the ministry. Short-term training for adult education staff did not work as planned when selection criteria applied by the cognizant agency eliminated all adult education staff from eligibility (primarily because of foreign language deficiencies).
Relatively frequent in the projects studied was the use of expatriate TA for project management roles where initial institutional capacity was assessed as weak. Here results have been mixed. The model worked well in the Yemen and the Congo, where expatriate managers were able to function effectively. (In the Congo project the absence of a team structure to integrate TA at the PIU and in project institutions contributed to coordination problems.) It appears to be working well in the Solomon Islands. As noted earlier, it did not work well in Mauritania, where expatriate advisors could not function in the cultural and administrative context of the Mauritanian system. It is interesting to note that improvement in the Mauritanian administrative system was dropped as an objective when the project was simplified shortly after negotiation in recognition of an imbalance between complexity and institutional capacity.

Conversely, the absence of technical assistance in a complex first project was cited as a contributing factor in management problems encountered with the Peru project.

No readily apparent pattern was found across the projects between the relative size of TA and fellowship resources and institution-building effectiveness. There is some indication that lack of agreement between the Bank and the government on the purpose and necessity for TA and fellowships lessens its utility. In the Honduras project, for example, the government refused to nominate fellows after the Bank rejected its first candidates.

A number of projects incorporated studies, primarily to generate data for better planning and management, but presumably with the added benefit of developing these capabilities. A number of issues surrounded this approach. In Ethiopia, as noted earlier, the use of expatriate TA for these studies was resisted by the government. Local expertise got involved as the government successfully modified this component, but the net experience was unsatisfactory in the impact of the studies on policy. In Thailand a series of studies added after initiation to use excess funds were uncoordinated and had mixed results. The Koranic School study in Mauritania, set up to be supervised by two ministries, proved to be a point of continuing friction in project management.

At the same time, project components designed to build institutional research and planning capabilities were modestly successful in the Philippine projects. These components were focused on infrastructure (computers, technical skills, data gathering systems).

The legal or legislative status of developing institutions is a further factor in institutional development. Failure of the Congo government to enact legislation weakened the effectiveness of rural vocational centers. The problems with the Philippine Textbook Corporation have been noted. The National Vocational Center (INFOTEP) in the Dominican Republic was delayed for four years while legislation was pending. The inability of the government to establish legal bases for articulation between universities and innovative project secondary vocational schools contributed to difficulties in the Colombia project.

On the other hand, once passed, the legislation for INFOTEP established the institution with an independent source of funding from levies on employment. This in turn has been a major factor in rapid growth of institutional capacity and effectiveness.
### Table 6: Management Factor Ratings

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<tbody>
<tr>
<td>Haiti I</td>
<td>6.5</td>
<td>Good</td>
<td>Good</td>
<td>Mod</td>
<td>High</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Poor</td>
<td>Fair</td>
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<tr>
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<td>Good</td>
<td>High</td>
<td>Low</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Fair</td>
<td>Good</td>
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<tr>
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<td>Fair</td>
<td>Fair</td>
<td>Mod</td>
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<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Poor</td>
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<tr>
<td>Ethiopia II</td>
<td>14.6</td>
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<td>Poor</td>
<td>High</td>
<td>Mod</td>
<td>Good</td>
<td>Fair</td>
<td>Good</td>
<td>Poor</td>
<td>Fair</td>
</tr>
<tr>
<td>Philippines II</td>
<td>21.4</td>
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<td>Good</td>
<td>High</td>
<td>High</td>
<td>Good</td>
<td>Fair</td>
<td>Good</td>
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<tr>
<td>Philippines III</td>
<td>24.7</td>
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<td>Good</td>
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<td>Low</td>
<td>High</td>
<td>Fair</td>
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<tr>
<td>Yemen I</td>
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<td>Good</td>
<td>Poor</td>
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<td>Good</td>
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<tr>
<td>Ethiopia I</td>
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<td>Mod</td>
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<td>Good</td>
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<td>Thailand IV</td>
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<td>Mod</td>
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<td>Poor</td>
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<td>Poor</td>
</tr>
<tr>
<td>Dom. Rep. II</td>
<td>14.2</td>
<td>Fair</td>
<td>Poor</td>
<td>High</td>
<td>High</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
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<tr>
<td>Honduras I</td>
<td>10.4</td>
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<td>Good</td>
<td>High</td>
<td>Mod</td>
<td>High</td>
<td>Poor</td>
<td>Poor</td>
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<tr>
<td>Mauritania I</td>
<td>3.8</td>
<td>Fair</td>
<td>Good</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Poor</td>
<td>Poor</td>
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<tr>
<td>Peru I</td>
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<td>Poor</td>
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<td>High</td>
<td>High</td>
<td>Poor</td>
<td>Poor</td>
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<tr>
<td>Ecuador I</td>
<td>16.1</td>
<td>Good</td>
<td>Poor</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Poor</td>
<td>Poor</td>
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<td>Poor</td>
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<tr>
<td>Colombia I, II</td>
<td>25.0</td>
<td>Good</td>
<td>Poor</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Poor</td>
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The importance of establishing financial bases for new institutions is underscored by the negative impact of lack of counterpart funding for institutions in both successful and unsuccessful projects. The textbook distribution system in the Philippines did not receive the promised government financial support; lack of counterpart funding threatened maintenance programs in Ethiopia, the Dominican Republic and Ecuador.

Lessons: Successful institutional development appears to require strategy, whether planned or evolving over time from experience. The data suggest that successful strategies are characterized by: (1) phased expansion; (2) "cloning" of units from a strong PIU into line agencies; (3) strong core management systems.

TA and fellowship resources can be of considerable importance in developing institutional capabilities. TA seems to be effective for direct management in projects where substantial Bank/government agreement on weak implementation capacity exists. It appears important to make careful assessments of the probability of expatriate advisors working well in the project environment when relying on them for direct management roles.

Given project experience, the Bank can expect governments to wish to phase out expatriate TA as soon as possible (perhaps sooner than the Bank anticipates) in favor of use of local expertise and, in some circumstances, increased fellowship training. Such actions seem to reflect a desirable sense of autonomy and capability on the part of governments, as well as concrete mechanisms for strengthening individual and institutional learning. If this interpretation is correct, this transition could well be planned as part of explicit institution building strategies developed in project preparation.

These strategies should also anticipate needs for legal authorization of project institutions and the need for counterpart funding. These two factors seem important to the establishment of the infrastructure essential to continuity and stability beyond the completion of a specific project.

5. Environment Variables

A full assessment of the many variables in the management environment of thirteen countries over a time period spanning seventeen years is clearly beyond the scope of this study. It is equally apparent that this kind of review has not been possible in Bank project completion reviews given the resources available for any given project.

The two variables on which the completion reports do provide information are the relative degree of stability in the general social environment and in the policy environment in which projects operate. 1/

1/ Other relevant variables include: the complexity of the task environment outside the immediate scope of the project (i.e., the task environment of the Yemen is presumably less complex than that of Thailand); the nature of administrative systems (i.e., the degree of insulation of bureaucracy from political change); social and cultural norms and values with respect to authority, participation, development and change.
First, there seems to be no necessary connection between general social stability, as assessed against such events as war, civil disturbance and natural disaster. While the assessments made in this study are crude, they have been consistently made, and the proportions of projects rated Good on social stability in each of the two performance categories is essentially the same (six of eight; six of nine).

As might be expected there are associations between stability in the policy environment and other aspects of project management. Most obvious is that all projects rated Good or Very Good on management performance were carried out in policy environments rated Good or Fair. Conversely, four of the nine projects rated Fair or Poor on performance had to contend with Poor policy environments.

The impact of poor policy stability of project management systems is seen through the associations between this variable and staff continuity. Three of the five projects with Poor continuity were carried out under conditions of Poor policy stability. Conversely, all of the projects rated Good on continuity were rated Good or Fair on policy stability.

The operational connection between policy stability and staff continuity comes through frequent changes in government and consequent personnel changes in PIU management. This was observed in Colombia, Ecuador and the Dominican Republic.

However, these obvious associations do not fully explicate the rather intricate relationships between policy stability and project performance. Projects with Good stability showed Fair performance; projects with Fair stability had Good performance.

In five category I projects governments changed educational policies and structures significantly during project implementation. The revolution in Ethiopia led to significant policy changes, and consequent effects on project implementation. In the second project the government instituted a national literacy campaign which diverted educational resources and led to a two year delay in project implementation. In the third project, the government withdrew from an agreement to carry out rural education through a religious organization, substituting a government program. Renegotiation with the Bank took eighteen months.

In the Philippine II and Yemen projects the government undertook administrative reforms which altered the design of project components. In the Philippines and Solomon Islands, these reforms increased decentralization of educational authority, changing the nature and degree of PIU control over project institutions.

In each of these instances relatively strong project management systems, supported by Good Bank/Borrower interaction and, with one exception (Ethiopia II), Good monitoring, enabled the project to adjust to these changes.

In general, category II projects rated Fair or Poor on policy stability had much weaker management systems and were much less likely to be supported by good monitoring and interaction with the Bank.
Interpreting these patterns, of course, requires considerable care. The direction of causality is not obvious. We have noted that policy instability contributes to lack of staff continuity, by definition weakening the management system. Lack of continuity is surely a factor in project monitoring and interaction with the Bank. And while it is unlikely that weak interaction and poor monitoring lead to policy instability directly, it was suggested regarding the Honduras I project that closer cooperation between the Bank and the government during supervision might have ameliorated to some extent the impact of policy changes (PPAR, p. 11).

Given these caveats, it does appear to be Bank experience that lack of policy stability can be handled where project management, monitoring and interaction with the Bank are relatively strong.

Lessons: Clearly, the Bank has little, if any, control over stability in the social or policy environments of education projects. The challenge to Bank and Borrower alike is to reach reasonable assessments of the likelihood of instability, particularly in the policy environment, and to design project management systems (including Bank resources and supervision plans) accordingly.

This would, in effect, take the Bank further into the realm of political risk analysis during project preparation than might now be the case.

In addition to working extra hard to build strong management systems for projects likely to encounter policy turbulence, the Bank might consider planning for mechanisms which could assist in reconciliation of the differences that might emerge with policy shifts. The data indicate that strong management systems interacting well with the Bank are able to handle such issues with the main consequence being delay in attaining project objectives. Where it appears that strong management systems will not be immediately in place (as in first-time projects, or later projects in countries with a history of management performance problems), more intense supervision and/or the creation of neutral processes for conflict resolution (such as independent review panels) might be built into the project design.

6. Summary

The analysis of experience in the management of Bank education projects has identified a number of patterns of association among the different factors in the analytical model used. These in turn give some insight into the interactive nature of the complex variables associated with effective project management performance. While cause and effect relationships cannot be established given the scope of the present study, the data do lend themselves to common sense insight into the ways in which different factors are related to each other and to overall institutional performance.

The review has also led to the identification of a number of relatively specific lessons for management design and for the role of the Bank during implementation.

The analysis was directed to the main question: what lessons can be learned from experience that can help improve education project management? The patterns and lessons in this section of the study provide a partial answer. However, to be fully useful, they need to be taken to a further level of
development. First, they need to be pulled together in an organized way. Second, they need to be placed in an operational framework which can assist Bank staff in applying them in project design, supervision and evaluation. To the extent possible, this framework should incorporate as well the general concepts of management, discussed in Section II, which undergird the analytical model.

This summary, and the development of a preliminary operational framework, follows in Section IV.
IV. SUMMARY AND OPERATIONAL FRAMEWORK

In this concluding section of the study the patterns and lessons gleaned from the data in Section III are summarized. These are then carried forward into a preliminary operational model which may have utility to Bank staff in the design of project management systems and in project supervision.

The operational model rests on a brief analysis of the management environment of the Bank and its relationship to the environments of Borrowers. It is fundamentally a contingency model. It incorporates in a necessarily speculative way elements of management design that do not appear to be given emphasis in current Bank practice, but which fit with the patterns and lessons of experience -- and with management theory as well.

A. Patterns and Lessons: A Summary

Given the limitations of the sample and the data of the study, a number of patterns and lessons have been identified which can contribute to better management planning for Bank education projects.

An important general conclusion is that the analytical model worked well to categorize and organize the PCR data about project management. As noted in the presentation of the model, PCRs largely lack data on the management approach taken in projects. We cannot tell if traditional, systems, behavioral, or some mixed contingency model was followed.

However, a number of interesting patterns of association appeared across the other components of the model. These are summarized below, followed by discussion of findings for each of the four components of the model: Project Environment Factors, Task Factors, Management System Factors, and Operational Management Factors.

It seems clear that relatively longer completion delays are considered by the Bank to be evidence of relatively weak management performance. At the same time, projects rated as well-managed also encountered significant delays, indicating that delays alone do not account for Bank judgements on the quality of management.

The strength of project management systems, as assessed by ratings on the four variables (Access, Coordination Control, Staffing and Skills, and Staff Continuity), was found to be directly related to assessed levels of management performance. Management systems strong on all or most of these factors were found to perform better. This implies the desirability, at least, of conscious planning for all four elements during project preparation and appraisal.

Good management performance seems to be supported by effective project monitoring by Bank staff. This may be an obvious conclusion, but one worth restating as it is confirmed by the data. Similarly, the data indicate that Bank staff relationships with Borrowers are good not only when the project is performing well (as is obvious), but also for projects not performing well as long as monitoring is effective. These findings together support a reasonably high level of attention to planning for project monitoring.
The more complex a project (as assessed by the degree of complexity and coordination needs, the degree of innovation, and the level of institution building needs), the stronger the management system needed for Good or Very Good performance. More complex projects also characterized by relatively low levels of Bank/Borrower agreement on goals and means at initiation require strong management systems and good monitoring and interaction with the Bank for good management performance. Again, such findings may appear obvious to Bank staff.

1. **Project Environment Factors**

   The degree of stability in the social environment does not seem to be clearly associated with the level of project management performance. Policy instability, of course, affects project management performance in that it contributes to staff turnover and to changes in the form and timing of project components. However, strong management systems, good monitoring and good Bank/Borrower interaction enable projects to adjust to policy instability and achieve good management performance.

   The Bank has little control over policy stability, and none over social stability. In first-time projects, and in countries with a history of policy instability and/or poor management performance, the Bank might do well to plan for more intensive supervision.

2. **Task Factors**

   The design of the project establishes the nature of the management task. The analysis indicates that policy disagreements in project formulation need not threaten project management performance if: (a) project management is strong, and (b) the Bank is flexible in supporting enroute changes. However, disagreement of this type can affect government support for the project and weaken Bank/government interaction.

   When Bank lending policy must prevail over local goals and policies, special attention in design should be given to developing strong management capabilities. Strong monitoring and a flexible attitude toward enroute changes by both Borrower and Bank staff is likely to be especially helpful in these projects: to the extent that the project is based on a policy compromise, both partners have an opportunity to explore the basis of the original disagreement and for the compromise as the project is implemented. As is obvious, of course, the project is a test of policy and management assumptions.

   Bank misgivings about Borrower implementation capacity need to be taken seriously, particularly in the case of first projects. First projects would also seem to warrant particularly intense supervision at early stages, with management training of Borrower staff a principal purpose.

   Coordination success in complex projects is a function of the strength of access to authority and the extent to which complexity can be increased gradually as management capacities are developed.

   Projects providing innovative educational services through new institutions should be prepared to generate demand for such services through public education activities.
Successful institutional development is a challenge in all projects. The data indicate that it requires planned or evolving strategies characterized by: (a) phased expansion; (b) "cloning" of units from strong PIUs to line agencies; and (c) strong core management systems.

Technical assistance for institutional development seems most effective in projects where there is substantial Bank/Borrower agreement that weak implementation capacity exists. The success of strategies which employ expatriate advisors in line management roles depends on the extent to which such advisors can function effectively in the Borrower's cultural and administrative environment. Planned transitions from expatriate to local expert resources can contribute to a positive sense of autonomy and capability on the part of project management units, and can strengthen individual and institutional learning.

Needs for legal authorization of project institutions and for counterpart funding to increase the probability of institutional stability should be anticipated in project design and incorporated in the pattern of project supervision.

3. Management System Factors
Access to decisionmaking authority is important to project management effectiveness. Where access was weak, management was generally weak as well. Access to authority seems to be strengthened by organizational arrangements which provide: (a) direct contacts at high levels to several key agencies; (b) provide, or fall into, a situation where a PIU director is promoted ahead of the unit, increasing access through personal advancement; and/or (c) direct access to the Minister of Education or the Permanent Secretary.

Access to authority seems to be weakened by: (a) low status for the PIU director; and (b) intermediate layers of bureaucracy between the PIU and the Minister or other most senior official.

Access for expatriate project managers depends on their ability to adjust to, and function within, the Borrower's cultural and administrative environment. This is, of course, obvious to experienced project managers.

Coordination of project institutions and activities is clearly one of the most demanding management activities. In larger and more complex projects coordination is the key to effectiveness; even in smaller projects, the coordination needs can be significant.

The data indicate that coordination control is strengthened by the creation of explicit mechanisms with key characteristics: (a) multiple access to top decisionmakers in key agencies; and (b) budgetary and administrative control over implementing agencies. Where vertical coordination of project institutions is expected, clear administrative and funding control should be built into the relationships between levels. Availability to the PIU of operational funds to support local activities designed to improve communication and coordination among implementing units can also improve coordination.

The data also indicate the importance of the personal role of the PIU director in establishing effective coordination. Thus training in coordination skills might be useful for project managers.
Appointment of liaison officers from implementing agencies to the PIU is effective in the context of a PIU with high levels of access and control, but not with weak PIUs with no budgetary authority.

The development of a management system under the aegis of the PIU, with subsequent transfer to a line agency, seems to work well. Such shifts seem to incur the risk of loss of coordination of procurement.

Coordinating Boards, designed to link various interest groups with project components, have not been effective. More thought needs to be given to the resource and authority base of such entities.

Staffing is a third key component in effective management. Good staffing is characterized by positions for each of the core technical functions of the project: construction, procurement, educational program development.

With respect to the use of technical assistance, the study found that long-term technical assistance seems most useful early in the development of project management units, and less useful in later stages. We also noted that rapid evolution within a project towards use of local expertise instead of expatriate TA contributes to institutional development.

Other findings confirm common sense about staffing. Clearly, good access contributes to the ability to attract and retain good staff. Salary incentives may help build management staffs where manageable in the Borrower environment. Poor access may lessen project management confidence, contributing to difficulties in using Bank resources -- TA and fellowships -- effectively.

Staff continuity was the fourth variable in management system design. The data in the PCRs does not provide much detail about the reasons why some projects have better staff continuity than others. However, it does appear that continuity is a function of good access and stable policy environments.

It also appears that insulation of project management from political influence and consequent change is difficult to achieve. Thus if continuity is important, yet not always possible, the Bank may wish to consider further strengthening its capacity for in-service management training for Borrower staff.

4. Operational Management Factors

Delays in management of inputs appear inevitable in Bank projects. However, training of PIU staff in ICB procedures, contract management and the development of specifications would improve performance.

Bank control over the delivery of counterpart funds is problematic in unstable policy environments. Consideration might be given to project designs which permit reduction in the number of units if counterpart funds do not become available as planned, rather than eliminating maintenance for all.

As noted, supervision should be planned as a major input to the development of project management capacity. It can be a major factor in project management if: (a) it is scheduled to fit with the nature of the project and the need for capacity development within the project; (b) missions are staffed
by persons with appropriate technical backgrounds; (c) there is some degree of continuity of persons on the Bank side; and (d) the Bank remains sufficiently flexible to mount supervision/technical assistance missions when management problems occur.

A supportive and flexible attitude on the part of the Bank towards Borrower management problems and needs for project modification can contribute to effective management.

B. Towards an Operational Model

The patterns and lessons that have emerged through the review of Bank experience add up to a list of factors to be considered by Bank staff in designing and supervising projects. It is a long list, one which would be easier to use if organized in some sequential series of steps which fit with current Bank project preparation and supervision approaches.

In addition, as noted in the presentation of the analytical model for the study, current Bank practice does not give the level of overt attention to management design that the management literature would suggest is useful -- especially in the degree to which conscious design decisions are made about management approaches. The nature of the patterns and lessons identified from experience further indicate that contingency management approaches, as noted in Section II, have promise for Bank action. The majority of patterns and lessons do come in the form of contingent, "if then" statements. These in turn tend to require an assessment of the management context of a given project as a first step towards conscious choices among a range of alternative design elements. To take an obvious example, more complex first-time projects seem to require a level and intensity of supervision not needed for less complex projects implemented by experienced project units. Or yet another example: project unit access in more complex projects with multiple implementing agencies is improved by multiple access channels at high levels.

Application of these patterns and lessons requires an operational framework which has been developed to fit current Bank practice to a more complex process of management design. The preliminary framework presented here is intended as a step in that direction.

1. Project Management in the Bank: An Overview of the Management Context

The framework is based on certain aspects of the Bank management environment. These are reviewed here as a preface to the model itself.

World Bank education project management takes place in a complex context, the dimensions of which significantly affect the actions which might be taken to improve project management. A number of factors grow out of the goals and operating style of the Bank itself, and may therefore be seen -- to some extent at least -- as givens in the management of all projects.

Each education project is managed in part in two different management environments, each with differing management systems and approaches. One environment is that of the Bank; the other is that of the Borrower. That integrating the two environments (and systems) is difficult is evident throughout the projects studied in the form of Borrower failure to comply with loan covenants and to respond affirmatively to Bank requests for management actions, and in projects which do not meet output targets. It is evident as well in Bank inability to enforce covenants and obtain compliance, in the
difficulties encountered in obtaining timely data on project implementation, and in the emphasis in Bank appraisal documents on various forms of input-output analysis with relatively little attention to the management environment and systems of the Borrower.

The internal management environment of the Bank is quite stable and relatively simple in terms of the number of factors with which staff contend. Entirely consistent with this type of organizational structure, the Bank seeks to maintain quality control through a relatively structured set of rules and procedures for project development and implementation.

However, the Bank does not control the institutions through which projects are carried out. Implementing agencies are politically autonomous and therefore impervious to a considerable extent to the imposition of the Bank’s management approach. A degree of financial interdependence is created by loan agreements; on the other hand, these loans often form only a small percentage of the resources being managed by an implementing agency (the Bank loan for the First and Second Colombia Education Projects, for example, comprised only 15 percent of the total construction budget of the implementing unit).

Moreover, managers in implementing agencies operate in relatively complex and unstable environments. They are often much less oriented toward comprehensive planning: more attention is paid to incremental change as a way of moving forward while constantly adjusting to complexity and instability. While they may (or may not) find Bank management systems intellectually attractive, the reality of their environment requires them to manage differently in order to be successful according to the standards of their own context.

Thus while Bank staff may view time and cost-overruns, poor construction quality, coordination failures, and partial achievement of enrollment projections as implementation failures, managers in implementing agencies may well view the same data as indicators of progress achieved given that they must be responsive to a variety of goals and requirements which are either irrelevant to the Bank project or even inimical to its success as planned.

The need to achieve a working level of integration between the Bank management environment and approach on the one hand, and the management environments and approaches in a large number of very different countries and for different kinds and levels of projects on the other, strongly indicates that the Bank should follow a contingency approach in working with Borrowers to develop management systems for each project. As noted earlier, contingency approaches draw on many management styles and systems in creating a management approach for specific tasks within a specific environment. This in turn supports the need for more attention to management design and planning as part of the Bank project development cycle.

A contingency approach also highlights the importance of effective communication between the Borrower and the Bank. If indeed each project is managed somewhat differently, then Bank staff will need to have more and better information on implementation if they are to be effective in project supervision. Borrower managers will need better information on Bank procedures and needs if they are to participate responsibly in the dialogue.
This need for this information flow is made more acute by the fact that Bank participation in (or control of) project management is limited. The point of most influence is in the project design and appraisal process, where the opportunity for collaboration with the Borrower in the design of management systems is greatest. Supervision missions, while helpful in tracking project progress and difficulties, are often less than effective in improving project implementation for reasons noted above. Bank management capability is further weakened by lack of continuity in project staff over time.

These aspects of the Bank management environment -- differences in stability and complexity between the environments of the Bank and the Borrower, lack of direct Bank management control, impact on management primarily through project design and secondarily through supervision, and need for information -- argue for stronger management assessment and planning as part of project preparation.

2. Operational Model

The model is shown in Figure 5. Like all models, it has been developed for a specific purpose: in this case, providing a perspective on education project management which can be useful to Bank staff in the project design and supervision process.

Three assumptions undergird the model. The first is that the fundamental nature of Bank/Borrower interaction in project design and management is not likely to change significantly. Thus Bank staff will continue to participate in project design, and provide some degree of oversight and assistance to management through supervision. More radical possibilities, such as direct Bank management of projects or extensive use of professional management firms on contract, are ignored as unlikely. Such approaches would, of course, radically affect the role of the Bank and thus the way in which projects were carried out.

The second assumption is that it is possible for the Bank to incrementally increase the amount of resources devoted to project management planning as part of the design and appraisal process.

The third assumption is that the Bank will continue to want to design projects, and project management systems, which fit the project environment and the capacities of project management institutions. In short, it is assumed that a contingency approach to management design is most appropriate for the Bank.
Figure 5: OPERATIONAL FRAMEWORK FOR MANAGEMENT OF BANK EDUCATION PROJECTS

1.0 Pre-Appraisal Planning
   Project Appraisal
     o Policy Analysis
     o Economic Analysis
     o Socio-Demographic Analysis
     o Feasibility Analysis

2.0 Project Design

3.0 Project Design Variables
   o Goal/Means Agreement
   o Complexity/Coordination
   o Innovation/Demand
   o Institutional Development Needs

4.0 Project Management Framework
   o Access
   o Coordination Control Mechanisms
   o Staffing/Skills
   o Institution-Building Strategies
   o Demand Generation Strategies

5.0 Operational Management
   Variables
   o Input Management Needs
   o Management Training Needs
   o Use of TA & Training
   o Supervision Needs
   o Monitoring Needs

6.0 Project Management Plan
   o Staffing Plans
   o Schedules & Controls
   o Task Planning
   o TOR & Training Plans
   o Monitoring Systems
   o Bank Supervision System
3. Structure

The core of the model is a three-stage process of project design. Each stage consists of an analytical component (shown in a box) and a product component (shown with the flowchart symbol for a document). In the first stage, these are Pre-project Planning and Project Appraisal (1.0) and the associated product, Project Design (2.0). This part of the project development cycle is well-established. Although not the focus of the present study, it does have important implications for project management.

Feasibility analysis as a component of project preparation and appraisal focuses, among other things, on the management capabilities of the education sector in general, and project institutions in particular. While the present study did not focus specifically on current Bank procedures for assessing management capabilities (and indeed this aspect of project planning is not addressed in Project Completion Reports), it seems clear that the development of systematic procedures for this critical task is needed. The broad components of the analytical model used in this study may offer a general structure around which such procedures could be developed.

The second stage consists of Project Design Variables (3.0) and an associated product, Project Management Framework (4.0). This component is, given the data available to us, only partially in place in the current project planning process. The analysis and formal design which this stage represents could be strengthened with beneficial results for project management.

Analysis of project design variables would be based on (but certainly not limited to) the patterns and lessons identified in the study and summarized at the beginning of this section. A contingency approach would characterize analysis at this stage, which would be done as the design of the project was developed.

The result of the contingency analysis would be codified in the Project Management Framework. This would be an expanded section in pre-appraisal and appraisal documents which specified the components of the project management system. Our data indicate that this specification would include, at a minimum:

- The access structure for the PIU
- Specific mechanisms for coordination control
- A staffing plan, showing skills required
- Strategies for institutional development
- Strategies for demand generation

These components would be supported by the analysis of project design and environment variables.

The third stage consists of Operational Planning Variables (5.0) and a Project Management Plan (6.0). Again, management planning of this type is partially in place. Our study indicates, however, that given the relatively little attention paid to design of management systems, and given that the nature of the management system for any project has significant impact on operational management, this component of project development can also be strengthened with beneficial results.
Here again, analysis would be guided by (but not limited to) the patterns and lessons of this study with respect to operational management. In addition, operational implications of the Project Management Framework would be worked through in some detail. These would include input management needs, such as supervision of construction; management training needs, such as in coordination and procurement for the PIU staff; plans for use of technical assistance and training in institution-building and demand generation strategies as well as in project management; and identification of monitoring and supervision needs given the Project Management Framework.

This analysis would be reflected in a Project Management Plan, which would set for detailed specifications and control mechanisms. Included would be staffing plans which reflected the anticipated growth and development of the PIU; schedules and other controls for input management; task schedules, and assignments to functions and positions in the PIU; and terms of reference for technical assistance and training based on all of these factors. Specific plans for project monitoring, and for Bank supervision (including schedules and skill mixes which met identified monitoring needs) would also be established.

This plan would be largely developed by the Borrower, following Bank guidelines and with the assistance of Bank staff and consultants. It would be seen as an initial operating plan. It would serve as the basis for identification of enroute problems and needed changes. These, in turn, might feed back into the Project Management Framework when major modifications were needed.

Finally, the model indicates a flow of analysis and planning which begins with Pre-project planning and leads through analysis of Management Systems Variables to Analysis of Operational Management Variables. The products of the analysis, actual or recommended, follow a similar pattern. Each stage draws on and makes more concrete the results of the prior stage. Environmental variables are shown as operating at each stage. As analysis and planning becomes increasingly concrete, the degree of variability in implementation should increase. In other words, one would expect and support more frequent changes in operations management (for example, in schedules) than in the basic project management system, though changes there would come and, in fact, might be planned as part of an institutional development strategy. Project design changes would be even less frequent (assuming a reasonably effective job of management system analysis and design).

C. Conclusion

The operational model is indeed preliminary. It is included primarily to emphasize the opportunity the Bank has to strengthen education project management design and supervision through incremental expansion of current project development practice.

Clearly the model would need further development, and Bank staff orientation not only to the model, but also to both the management principles and lessons from Bank experience on which it rests.
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