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APPROPRIATE MANAGEMENT TECHNOLOGY:
A DEVELOPMENT ADMINISTRATION PERSPECTIVE

by

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APPROPRIATE MANAGEMENT TECHNOLOGY*

I. INTRODUCTION

In the last two decades of the 1900s, few international problems are likely to be more salient and less tractable than the poor performance of public sector organizations. This problem is likely to be most serious in Third World countries where the public sector frequently plays a substantial role in both maintaining order and promoting socio-economic development.

Public sector performance problems are nothing new. During the 1950s, 60s, and 70s, numerous strategies including "Institution Building," "Administrative Reform," "Participation," and "Decentralization" were put forth as partial or total remedies to the performance problem (Ingle, 1979). Based on these prescriptions, many of them supported with donor assistance funding, governments around the world have realigned internal organizational structures, established new systems, upgraded skills and in general taken a variety of measures aimed at improving the overall performance of public sector institutions.

The results of these remedies--in many cases involving substantial personnel and financial investments--are discouraging at best. Many of the "most advanced" and "best" performance improvement strategies have failed to result in substantial economic, political, and social progress in developing countries. Recent assessments in this area conclude that a major reason for the failure of many improvement efforts relates to the transfer and use of inappropriate management theories and techniques (Ingle, 1979; Rondinelli and Ingle, 1980; AID, 1981; World Bank, 1981).

While many scholars and practitioners have concluded that management deficiencies represent a key constraint to improved development performance,

* This paper draws heavily on discussions with and comments made by colleagues at PCI, most importantly Leon Rosenberg. Others who have made substantial contributions include Larry Cooley, Jane Hersee, Bruce Mazzie, and David Barker.

there is little agreement on an overall framework for systematically assessing the role that management plays in public sector development efforts. Even less attention has been given to dealing with the issue of "appropriateness" within a management context. Thus, at present, almost no systematic or scientific basis exists for judging the "appropriateness" of various management improvement efforts.

This paper proposes an initial conceptual framework for examining the relationship between management and public sector performance by viewing management as a technology. More specifically, a basis is proposed for determining the meaning and boundaries of "appropriate" management technology in different settings. The author's arguments are:

1. Prior attempts to transfer and apply new management theories and techniques have frequently failed due to a lack of "appropriateness."
2. Transfer and application of appropriate management theories and techniques can be greatly facilitated by treating management as a technology which is derived from a science of management.
3. Management as a technology is only in its initial stages of systematic development, codification and empirical testing; however, attempts to treat management as a technology are beginning to yield encouraging results.
4. The trends toward viewing management as technology have major implications for management research, consulting, and education/training.

Each of these arguments is discussed in the remainder of the paper.

II. THE PERFORMANCE PROBLEM--INAPPROPRIATE MANAGEMENT THEORIES AND TECHNIQUES

Many observers of Third World country public sector performance cite the adaption and use of inappropriate Western management technology as a key factor contributing to implementation failures, low levels of productivity, and other undesirable characteristics (Korten, 1977; Mendoza, 1977; Moris, 1977, 1981; Rondinelli, 1977). The basic argument is that many management concepts and practices promoted by Western educational institutions, donor agencies, and development consultants are not well suited to the development needs of Third World countries. The critique of Western management technology has two predominant themes, as discussed below.

Western management technology is frequently criticized for containing value orientations that are ill-suited to the administrative needs of Third World institutions and organizations. At a conference held at the Maxwell School of Syracuse University, for example, former graduates from Third World countries were asked to return and critique their course of public administration study. A point of apparent consensus throughout the conference was the "contextual nature of development administration" (Swerdlow and Ingle, 1974). Most of the papers and deliberations asserted that Western oriented public administration as it was then taught was "largely irrelevant for less developed countries." To redress this situation, participants recommended the following change:

The assumptions and values underlying the concepts and techniques of American public administration must be made more explicit. This can be accomplished through structured efforts wherein foreign students will compare Western assumptions and values with those of their own country. This implies expanded opportunities and guidance for the comparative study of administrative history and development. Foreign students and their teachers should examine assumptions and values in order to gain a realistic understanding of how public administration concepts and procedures fit in the U.S. and the less developed country environment.

On the same theme, Moris raises the issue of "why it is that the transfer of Western management practice into Africa and Asia has had such disappointing results" (Moris, 1977). A partial explanation he contends, is that the "administrative cultures" differ across societies, and these differences might help to explain the weak performance associated with the introduction of Western management techniques. He explains:

Administrative culture is the combined outcome of a long process of informal work socialization and the interaction of complex administrative structures. It is much less readily amenable to direct transfer (than are administrative techniques), perhaps hardly subject to transfer at all.

Moris contends that some segments of "administrative culture" must accompany the more tangible "administrative techniques" in order for a truly effective technology transfer to occur. Yet, he notes that almost nothing is known about the administrative culture prerequisites that underlie the effectiveness of techniques in the parent society. Given this dilemma, Moris proceeds to itemize no less than twenty common East African administrative culture characteristics which differ substantially from those in Western societies. From this he concludes that bureaucratic management problems are of systemic "cultural" origin and cannot be dealt with by simple technique-oriented solutions. In fact, he notes that performance problems or weaknesses may themselves be a peculiarly Western phenomenon as follows:

Why then does the (developing country administrative) system not collapse from its own inner weaknesses? The answer is that the above traits are "weaknesses" only from the standpoint of the particular assumptions that underlie administrative effectiveness within the Western managerial tradition. Viewed as functional prerequisites in a social system, these same traits become organizational strengths that help to explain the extraordinary persistence of traditional bureaucratic forms under adverse conditions.

Another proponent of the "value orientation" theme argues that differences in the application and effective use of American management theories abroad can be traced to differences "in the collective mental programming of people in different national cultures" (Hofstede, 1980). Hofstede examines motivation, leadership, and organizational theories from a cultural

perspective, and as a result "... seriously questions the universal validity of management theories developed in one country--in most instances here, the United States."

The second major theme in the critique of Western management is that the managerial tools and techniques which Western nations urge developing countries to adapt are overly complex, excessively planning or design oriented, and generally inadequate to deal with Third World resource requirements (Chambers, 1977; Siffin, 1977). Rondinelli has labeled this as a syndrome of "imperious rationality" which donor agencies and others bring to bear on recipient countries (Rondinelli, 1977). Chambers details how the syndrome operates:

The complex procedures delay projects. Delays to projects increase pressures for donors to spend. Pressures to spend exert biases towards the less poor developing countries, towards larger projects, towards urban areas, and within rural areas, towards those who are better off. In short, complex procedures divert development efforts away from the poorer rural people (Chambers, 1977).

Some of the inappropriate features of the Western management transfer process are described by Korten as follows:

1. The U.S. public administration technologies which were exported were inappropriate both to the task of development and to the environment in which they were to be used.
2. The emphasis on rules, procedures, formal structures, position classification, PPBS, and formal organizational specifications was better suited to system improvement within well-institutionalized socio-political systems than to the need of Third World nations for system development. Furthermore, these tools and techniques were not adequate for establishing organizations that would produce new outputs, stimulate new forms of behavior in their environment, and continue to innovate over time.
3. The separation of planning and implementation left the planners far removed from reality and generated in some planners a sense of omnipotence and a disdain for the lesser folk who were simply to follow their directions.
4. Comprehensive, multisectoral planning called "... for unavailable information, nonexistent knowledge, and a political stability in

constant pursuit of aims undreamed of in ... (the experience of most developing countries.)"

5. The emphasis on planning was at the expense of the implementing managers on whose effectiveness and imagination the success or failure of a project was often dependent. The planning and control models failed to encourage "... an ability to rapidly identify and solve problems, an aggressive attitude toward overcoming obstacles, and a sense of power to change and implement ... " at lower societal and organizational levels.

6. The technical assistance effort in administration was largely isolated from newly emerging insights in organization theory which was seriously challenging the "simplistic" models of the 1930s.

7. Planning activities tended to ignore the reality that power and knowledge is widely dispersed and that policy choices arise out of political competition among divergent interests (Korten, 1977).

In summary, Western management theories and practices have come under increasing attack in recent years. Although the critique appears valid, we should point out that it has two serious limitations. First, it rests on a rather narrow data base. Before totally accepting the proposition that Western management approaches are ill-suited to Third World contexts, more rigorous analysis is required both of what is being transferred from the Western context and what the performance impacts are. Even Hofstede, for example, cites examples where apparent "cultural barriers" to Western management technology have been successfully overcome in other countries. A second limitation is the negative bias implicit in most research results to date--most studies only seek to explain why performance failures occur. Several recent studies suggest that the results might be quite different if a more balanced review of the management transfer issue were undertaken, one that gives equal priority to understanding both successful and non-successful public sector performance improvements.

III. MANAGEMENT AS TECHNOLOGY: PERSPECTIVES ON APPROPRIATENESS

The development administration and management literature makes a strong case for the position that poor public sector performance in Third World settings can frequently be attributed to the inappropriate transfer and application of management theories and techniques. A useful way of taking a hold of the issue of how and why many management theories and techniques appear to be inappropriate is to view management as a type of technology-- to be referred to in the remainder of this paper as "management technology."

Viewed in this way management technology represents a meta-technology since it is that technology upon which all individual, group, and organizational performance ultimately depends. As explained by Rosenberg and Hageboeck:

Management is a technology used to harness and control other technologies. It includes and even emphasizes practical knowledge of how best to utilize people so they can best utilize the "hard" technology (Rosenberg and Hageboeck, 1973).

In this context, management is defined as the technology of using resources responsibly and productively to accomplish a hierarchy of objectives under conditions of uncertainty and partial control. Technology in turn is viewed as an applied science encompassing the totality of means employed to provide objects necessary for sustenance and comfort.

Many management theories and techniques are inappropriate, it will be argued here, because they are not conceived of and applied in a scientific manner-- as a rigorous management technology. Furthermore, it is argued that if we view management as technology then we are provided with an overall framework for defining "appropriateness," and improving the successful transfer and use of management theories and practices.

A technology stems from science, from first principles, rather than from techniques. However, in the field of management, we have not yet clarified

our principles or codified the science. We are in fact primitive empiricists trying theory and technique after technique but lacking an underlying scientific base. In this context, it is not surprising that we have difficulty in defining "appropriate" management technology. We have no way to deduce what is appropriate and what is not. Unlike those of us who frequently write about or give advice on management, our colleagues who actually manage successfully, whether they be a program director of a large public department or the treasurer of a rural cooperative, have minimum difficulty with defining what is appropriate. They practice a management technology that works.

It should be our operating hypothesis, therefore, that many aspects of management practice used in Third World countries, like that of farming practice, is the best and most effective (particularly when considering risks) method possible. Being less encumbered by mystical irrelevancies that encumber our Western technologies, folk management is discernably closer to the first principles of management and should be a good source of specific cases from which to generalize in order to develop and test theories.

Lacking a scientific base, appropriateness must be determined on a case by case basis--it always depends on the specific situation.

The alternative approach is to begin by viewing management technology as an applied science. This involves accepting the following conceptual steps:

1. That there is a science of management.
2. That management principles--universally valid statements--exist that can be discovered.
3. That these principles will at once predict and explain the affairs of managers and the practice of management.
4. That based on those principles, a derivative management technology comprised of concepts and techniques can be developed--just as, based on principles of physics, an engineering technology took us to the moon.

5. That by definition, the integrated set of principles, concepts and techniques will be optimally "appropriate" in a substantive sense. That is, when applied in an integrated way, the derivative management technology represents the most efficient means for accomplishing performance objectives.
6. That by deduction, the manner of introducing and applying management technology in particular settings (and choosing from among alternative concepts or techniques within the integrated technology) involves a different type of appropriateness--a "process" appropriateness. Being optimally appropriate in a process sense is a function of the ability to diagnose and deal with salient characteristics of the organizational environment.

Based on this conceptual framework, appropriateness should be looked at from both a "substance" and a "process" perspective. Thus, "appropriate management technology" can be defined as comprising two discrete components: (1) a substantive set of integrated principles, concepts and techniques and (2) a process dimension for making iterative choices about the best ways to intervene and adapt in given settings.

This framework is useful for understanding the reasons involved in the management transfer failures reviewed in Section II. First, a major reason why management theories and techniques have not been appropriately transferred during the last few decades is that what has been transferred, primarily theories and techniques, is not consistently related to a systematic science of management. Many theories and techniques are not appropriate in the "substantive" sense. Second, the process of transferring management theories and techniques frequently has been inappropriate.

As Rosenberg and Hageboeck point out:

- Management assistance has been institutionally rather than practically oriented, and tutorial rather than helpful;
- Too often, management assistance has been rendered by people with limited management skills and even less practical experience; and
- We have failed to reach the right audience.

(Rosenberg and Hageboeck, 1973)

Obviously, the development administration profession is not yet in a position of having a fully codified management technology, and thus it is currently difficult to determine appropriateness using the conceptual framework introduced here. In lieu of this, another approach to determining the appropriateness of management theories and techniques has been suggested. It has been referred to as "folk management" and is similar in some respects to well the well established "appropriate technology" movement in the U.S.

Folk management, a term coined by R. Iversen of Syracuse University, is used to encompass various performance improvement efforts which employ indigenous management approaches and techniques. Much of the support for this approach comes from those who are desirous of promoting self-sustaining development processes within a basic human needs framework.

Folk management is based on several premises. The first is that national and local administrative capacity in developing countries is "a fairly inelastic scarce resource" (Chambers, 1969). Thus, it is not feasible to make substantial improvements in general administrative capacity in a short or intermediate time frame. A second premise is that the incentive structures of many administrative units are non-developmental in nature, and function with a strong elitist bias. Thus, it is unwise to rely on currently constituted national level government units to accomplish development results. Third, folk management assumes that a substantial amount of large unused indigenous management capacity (or potential) exists at all societal levels--in Hirschman's words, certain administrative and management "traits" are evident in all human environments (Hirschman, 1967). Thus, the proponents of folk management seek ways to productively harness the management resources and skills which already exist and are generally acceptable in improving public sector performance.

In many ways, the folk management approach represents an application of appropriate technology principles to the area of development management. For example, folk management stresses low overhead, compatibility with local social conditions, comparatively light capital investment, optimum

use of available resources, and easy operation and maintenance locally without intensive support requirements.

In practice, the folk management approach is articulated in many different ways. Issues of importance to date include:

- Complexity of management procedures--Chambers notes that an effective management system at the local level, based on simple and practical procedures, can markedly improve the performance of rural programs (Chambers, 1977).
- Intensity of management requirements--Chambers also suggests that programs be undertaken which are "... administrative sparing, both in intensity and in the persistence of their requirements" (Chambers, 1969, p. 8).
- Program scale or size--The literature indicates that relatively small programs can most effectively adapt and use local management capability (Development Alternatives, Inc., 1975).
- Administrative culture--There is a need to use existing structures to avert transfer of management technology problems (Moris, 1977; Rosenberg and Hageboeck, 1973).
- Levels of management sophistication--Kulp argues that three levels or "generations" of management technology need to be considered (Kulp, 1981).

IV. MANAGEMENT TECHNOLOGY: CURRENT DEVELOPMENTS AND APPLICATIONS

Management as a technology is only now in its initial stages of systematic development, codification, and empirical testing. One collegium that views management as a technology which should be derived from science is Practical Concepts Incorporated (PCI). Over the last ten years, PCI's staff and associates have devoted considerable attention to the development and testing of management technology (Rosenberg and Hageboeck, 1974).

The intellectual antecedents of the management technology, developed by PCI, which include systems theory, management by objectives, scientific method, and human relations, have their grounding in several decades of management practice. For PCI, the origin of the technology involved an initial consultancy with AID in 1969. PCI staff were commissioned to assess AID's evaluation system and recommend improvements in both the system and the way it was used. Since then management technology has been tested and implemented in numerous countries. It has been applied to programs as diverse as satellite education, integrated rural development, agriculture and livestock, water resource management, and industrial development. The concepts have been used and adapted by the private and public sector organizations at the national, regional, and local levels.

The technology which has evolved from PCI's research, consultancy, and training interventions has been integrated into a generic set of principles, concepts and techniques commonly referred to as the P.M.S. or the program/project management system (PCI, 1980). The P.M.S. technology serves as the fundamental organizing mechanisms for the various management improvement efforts undertaken by PCI. A list of the key principles, concepts, and techniques currently integrated into the P.M.S. is presented in Exhibit I.

The P.M.S. technology has two interrelated components: a substantive management component and a methodology for the design and conduct of improvement

EXHIBIT I: LIST OF INTEGRATED PRINCIPLES, CONCEPTS, AND TECHNIQUES
IN THE P.M.S. MANAGEMENT TECHNOLOGY

<p>Generic Principles</p>	<p>Everything is uncertain;</p> <p>For every cause there are multiple effects and vice versa;</p> <p>Organized forms tend to displace disorganized forms;</p> <p>There are limits to the extent that single entities can become more organized or more complex; therefore, <u>organization</u> of organized forms is the process of evolution;</p> <p>Everything is part of a system--all systems are part of or subsume other systems; and</p> <p>Direction and feedback are essential ingredients for evolutionary success.</p>																
<p>Core Concepts</p>	<p>Clear and agreed upon objectives;</p> <p>Consensus on roles and responsibilities;</p> <p>Realistic scheduling and budgeting; and</p> <p>Cost-effective means for monitoring and reporting.</p>																
<p>Key Techniques (partial list)</p>	<table border="0"> <tr> <td>Objective Trees</td> <td>The Management Contract</td> </tr> <tr> <td>Logical Framework</td> <td>Monitoring and Reporting</td> </tr> <tr> <td>Forming the Project Team</td> <td>Management by Objectives (MBO)</td> </tr> <tr> <td>Management Feasibility</td> <td>Evaluation and Practical Uses of Scientific Method</td> </tr> <tr> <td>Basic Scheduling Techniques</td> <td>Congruence Diagrams</td> </tr> <tr> <td>Performance Networking</td> <td>Objective Verification, Data Collection and Measurement</td> </tr> <tr> <td>Resource Estimates and Projections</td> <td>Benefit Continuation Methods</td> </tr> <tr> <td>Assigning Responsibilities & Tasks</td> <td></td> </tr> </table>	Objective Trees	The Management Contract	Logical Framework	Monitoring and Reporting	Forming the Project Team	Management by Objectives (MBO)	Management Feasibility	Evaluation and Practical Uses of Scientific Method	Basic Scheduling Techniques	Congruence Diagrams	Performance Networking	Objective Verification, Data Collection and Measurement	Resource Estimates and Projections	Benefit Continuation Methods	Assigning Responsibilities & Tasks	
Objective Trees	The Management Contract																
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efforts. The substantive management component represents an evolving system of management principles, concepts and techniques. The content gives high priority both to conceptual/analytical approaches and human/inter-personal issues within the context of performance oriented processes. Thus, the "substantive appropriateness" concern is handled by relying only on those principles, concepts and techniques which are fully integrated into the P.M.S.

The methodology used in designing and conducting management improvement interventions is characterized by a broad and collaborative reconnaissance of the client organization/environment, by successive iteration of shared objectives and approaches, by a learning-by-doing intervention mode, and by a commitment to the position that the most important results are those which take place in on-the-job organizational settings. Thus, the "process appropriateness" concern is handled by being sensitive to ongoing processes and relationships in organizations. Techniques are selected for incorporation into a management improvement effort based on collaborative and iterative assessments of need and performance capacity.

Having access to an appropriate management technology, in both the "substantive" and "process" sense, is of critical importance to our collegium. We operate on the fundamental premise that appropriate management technology interventions (using the P.M.S.) are more cost-effective in improving performance than "hard" technology interventions. As a corollary, it is more cost-effective to combine hard technology and management technology interventions than to undertake a hard technology intervention alone.

Although various evaluative assessments of the P.M.S. management technology have been conducted, results can only be assayed with the greatest caution at this point. Nevertheless, a number of specific items may be recorded for reflection now and fully critically assessed when more results are in. These results are grounded in specific experiences, and are consistent with our general observations about the P.M.S. management technology. They include:

- The P.M.S. management technology, which emphasizes the integration of substantive management content and management improvement intervention methodology, is inherently an effective general purpose approach for application in most management improvement settings, and is a particularly critical element in the conduct of large organizational performance improvement programs.
- The approach of trying to saturate-upgrade the entire top and middle management strata of a medium-sized organization in an integrated system of management concepts and skills is neither as costly nor as difficult as it may appear at the outset.
- To optimize the impact and probability for long-term success, management improvement interventions should institutionalize a continuing presence of consultants/experts through critical follow-on stages.
- It is useful to ponder the possibilities of replicating the results on one organization's improvement program throughout an expanded system of development oriented organizations in a country.
- The P.M.S. management technology emphasizes team-building and the importance of cohesive project teams working within public sector organizations to improve performance. We are encouraged that "matrix management," the theory behind the organization of project action-teams, when integrated into the P.M.S., represents one of the most promising lines of future growth of management science.

Over the last few years, various management improvement approaches in addition to the P.M.S.--such as training of trainers in management, process consultation, action-training--have been articulated and tested in developing country settings (for a summary of several see DPMC, 1981; ATI, 1980). An expanding information base on the rationale, logic, premises, and results of these approaches is becoming available. At a recent workshop sponsored by the U.S. Department of Agriculture and the Agency for International Development on "Evolving Technologies for Project Management Improvement," an initial comparative assessment on management principles and concepts underlying these various approaches was attempted. The tentative consensus largely confirmed that a generic core of management technology consistent with the P.M.S. does exist in the development administration community. Briefly, successful management improvement efforts were found to have the following elements in common:

- Commitment to and incentives for an operational management system;
- Clear, compatible and realistic performance objectives;
- Systems for improving management processes accompanied by processes for developing systems;
- A common management language for ongoing communication;
- A constituency or owners for the improvement effort;
- Mechanisms for monitoring and influencing the policy context;
- Methods for adapting to change over time; and
- Mechanisms for assessing accomplishments and feeding this information back into the management process.

Based on PCI's experience, and the results of others involved in management improvement efforts, the following conclusions regarding the current status of an appropriate management technology may be ventured:

- An initial management technology has been formulated;
- It is based on theoretically justified principles. These theoretical principles coincide with principles abstracted from the actual experience of successful organizations; and
- The resulting management technology is directly related to the way human systems perform. That is, successful organizational performance rests at minimum on: a clear and agreed upon (committed to) objectives; a clear definition of roles and manageable interest for major actors; and clear mechanisms for feedback and change.

V. IMPLICATIONS FOR DEVELOPMENT ADMINISTRATION

This paper argues that substantial improvements can be made in public sector performance by viewing management as a technology rigorously derived from an emerging science of management. Viewing management as technology, which is synonymous with taking a more generic and less contextual approach to development administration, has several major implications for research, consulting, and education. First, this way of thinking leads us to believe that a universal core of management technology lies at the base of successful organizational performance. Its appropriateness stems primarily from the fact that it is consistent with first principles, and only secondarily with the fact that it is situationally adapted. In fact, by definition the substantive core of appropriate management technology does not need to be adapted, it is universally applicable in any context. A major implication of this is that what is required for successful performance is not just better trained or more accomplished managers per se but rather a core of managers who understand and are versatile in using appropriate management technology.

The implication for research is that a major task remains in further developing, codifying, and testing an applied science of management. Much needs to be learned about the forms of workable management technology developed by, for, and in developed and developing country contexts. We have much to learn from what others have done in developing a management technology, from reviewing principles of the science of management, and through testing and adaptation of appropriate concepts and techniques compatible with both. In doing this we will want to look closely for success stories; that is for examples of locally evolved, folk management practices that have accomplished objectives thought to be important using local resources.

In consulting, we must be careful to make a distinction between the substance of appropriate management technology and the process dimension of adapting technology components in particular contexts. It is our premise,

based on experience in many countries, that an essential component of appropriate management technology is concerned with the process of intervention and adaptation. Thus, it may be that a predominant feature of a more fully developed management technology will be universal techniques for allowing appropriate adaptations across and within cultural contexts. Certainly, this is an area of prime concern for additional attention.

Finally, as educators we must accept the responsibility to reorient development administration and management programs away from predominantly theoretical models which are descriptive and explanatory, toward those which are performance-oriented in nature. Educational programs should be expanded to include a healthy mixture of theory and empirical results-oriented evidence.

MANAGEMENT TECHNOLOGY GLOSSARY*

APPROPRIATE MANAGEMENT TECHNOLOGY	A technology appropriate along two dimensions-- substantive content and intervention or process methodology.
EVALUATION	An orderly examination of past experience in order to predict and better influence the future. Examines validity of hypotheses, challenges relevance of objectives, and results in redesign and replanning actions. Evaluation can be a powerful management tool when used constructively to improve program performance.
IMPLEMENTATION	The management of desired policy impact under conditions of partial control.
MANAGEABLE INTEREST	The term "manageable interest" refers to that complex of activities and resources that the manager controls <u>in producing outputs for a given purpose</u> . In effect, the competent manager accepts the responsibility and accountability for producing those outputs. He does not accept responsibility for achieving purpose: that is the responsibility of top management. However, he does accept responsibility for doing all that he can to <u>monitor the progress of the project in relation to the achievement of that purpose and doing all that he can reasonably do to influence achievement of purpose</u> .
MANAGEMENT	The productive and responsive use of resources to achieve organizational objectives under conditions of uncertainty and partial control.
ORGANIZATIONS	Social systems comprising interrelated subsystems; these subsystems include a human/social system, an administrative/structural system, an informational/decision-making system, and an economic/technological system (from <u>Management of Organizational Behavior</u> by Hersey and Blanchard, Prentice-Hall, 1977, pg. 3).
OUTPUTS	The specifically intended results that can be expected from good management of the inputs provided. A project manager is accountable for producing outputs; the project manager, line supervisors, and program staff share responsibility for the judgment that producing these outputs will result in achieving purpose. In contracting terminology, outputs equate to "deliverables."

* Revised from an earlier draft prepared by Ms. Jane Hersee, PCI, January 1981.

PROGRAM	A "project" consisting of a group of projects all contributing to the same Goal. A program is managed to achieve "Goal" just as a project is managed to achieve "Purpose."
PROJECT	A system (that is, a set of interrelated activities and events) established to achieve a specific objective within specified resource constraints (see "System"). A project can be any planned undertaking for which all elements of the project are interrelated as required to achieve the project objective (Purpose).
PROGRAM DESIGN	A comprehensive statement of what the actual program will look like when completed and detailed plans for how the program will be implemented.
PROGRAM MANAGER	The individual who holds himself personally accountable for the success of the program. More specifically, the individual who is charged with producing the agreed-upon outputs within the specified time and cost constraints.
PURPOSE	What is hoped to be achieved by undertaking the project. The result aspired to <u>if</u> the required outputs are produced. Usually the <u>significant change</u> in people or organizations thought to be required to effect important social or economic benefits for the target population.
REPORTING	Providing the necessary information to appropriate people for timely decision-making regarding the successful implementation of the project. Includes both formal and informal communications; e.g., a format (fixed format) report may be the stimulus for personal discussions.
SCIENTIFIC METHOD	"A method of research in which a problem is identified, relevant data collected, a hypothesis formulated, and the hypothesis empirically tested." (from the <u>Random House College Dictionary</u> , 1975.)
SYSTEM	Interrelated activities and events organized to perform a specific function(s)--e.g., produce certain output(s). A system may comprise any number of elements but the interrelatedness of those elements is that required to perform the system function(s) or to achieve its output(s). No system exists without connections to other systems.
TECHNOLOGY	Branch of knowledge that deals with applied science; the application of knowledge for practical ends.

REFERENCES

- A.T. International, A Conference of Appropriate Technology Practitioners in Asia, Washington, D.C. 1980.
- Chambers, Robert, "Executive Capacity as a Scarce Resource." International Development Review. II, June 1969.
- Chambers, Robert, Managing Rural Development: Ideas and Experience from East Africa. New York: Africana Publishing Co., 1974.
- Chambers, Robert. "Simple is Practical: Approaches and Realities for Project Selection for Poverty-Focused Development," Submitted to the Symposium on Implications of Income Distribution and Employment Objectives for Project Appraisal and Identification, Kuwait, April 1977.
- Development Alternatives, Inc., "Strategies for Small Farmer Development: An Empirical Study of Rural Development Projects," Volumes I and II. Report prepared for the Agency for International Development under Contract No. AID/CM/ta-C-73-41, May 1975.
- DPMC (Development Project Management Center), International Workshop Proceedings: Evolving Technologies for Project Management Improvement, USDA in cooperation with AID, 1981.
- Hirschman, Albert, Development Projects Observed, Washington, D.C.: The Brookings Institution, 1967.
- Hofstede, Geert, "Motivation, Leadership, and Organization: Do American Theories Apply Abroad?", Organizational Dynamics, Summer, 1980.
- Ingle, Marcus, Implementing Development Programs: A State-of-the-Art Review, U.S. Agency for International Development, Washington, D.C., 1979.
- Iversen, Robert, "Identifying and Eliminating the Managerial Constraints to Development," Syracuse, New York: Maxwell Training and Development Programs, Syracuse University, 1976 (mimeographed).
- Korten, David C., "Management for Social Development: Experience from the Field of Population," discussion paper prepared at the request of the Rockefeller Foundation for their Conference on Public Management Education and Training held in Bellagio, Italy, August 11-15, 1976.
- Korten, David C., "Community Organization and Rural Development: A Learning Process Approach," Public Administration Review, September/October 1980.
- Kulp, Earl, "P.M.S. and Agriculture R & D Management," Practical Concepts Incorporated, 1981.

- Members of Harrison House, "The Emperor's Clothes: The Behavioralist's Strategy for Management Development," Training and Development Journal, June 1979.
- Mendoza, Gabino A., "The Transferability of Western Management Concepts and Programs, An Asian Perspective," Education and Training for Public Sector Management in the Developing Countries, J.E. Black et al., eds., The Rockefeller Foundation, March 1977, pp. 61-71.
- Moris, Jon R., "The Transferability of Western Management Concepts and Programs- An East African Perspective," Education and Training for Public Sector Management in the Developing Countries, The Rockefeller Foundation, March 1977, pp. 73-83.
- Murphy, David C. et al, Determinants of Project Success, Boston College, Massachusetts, 1974.
- Practical Concepts Incorporated, Project Management System (PMS): An Integrated Systems Approach to Managing the Project Cycle, Washington, D.C., 1980.
- Rondinelli, Dennis A., "Implementing Development Projects: The Problem of Management," In the Focus Section of International Development Review, 20, 1973, pp. 8-12.
- Rondinelli, Dennis A, "International Assistance Policy and Development Project Administration: The Impact of Imperious Rationality," International Organization, 30, Autumn 1976, pp. 573-605.
- Rondinelli, Dennis and Ingle, Marcus, "Improving the Implementation of Development Programs," in Institutional Aspects of Regional Development, Maruzen Asia Publishers, 1981.
- Rosenberg, Leon and Hageboeck, Molly, "Management Technology and the Developing World," IFAC/IFORS Symposium, Algeria, 1973.
- Siffin, William J., "Two Decades of Public Administration in Developing Countries," Education and Training for Public Sector Management in the Developing Countries, J.E. Black et al, eds, The Rockefeller Foundation, March 1977, pp. 49-60.
- U.S. Agency for International Development, Draft Management Training and Development Strategy statement, 1981 (mimeographed).
- World Bank, "The World Bank and Institutional Development: Experience and Directions for Future Work," Project Advisory Staff, May 1980.