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PROJECT MANAGEMENT FOR RURAL EQUALITY

INTERIM PROGRESS REPORT

A REPORT PREPARED FOR
THE AGENCY FOR INTERNATIONAL DEVELOPMENT
UNDER CONTRACT NO. AID/TA-C-1255

APRIL 1976

MARCUS INGLE/GEORGE HONADLE PARTNERSHIP
902 IVY RIDGE, #23
SYRACUSE, NEW YORK 13210

PROJECT MANAGEMENT FOR RURAL EQUALITY

INTERIM PROGRESS REPORT

MARCUS INGLE AND GEORGE HONADLE
PARTNERSHIP

A report prepared for the Office of Development Administration, Technical Assistance Bureau, Agency for International Development (TA/DA: AID), Washington, D.C., Under Contract AID/ta-c-1255, Dated December 3, 1975. This report presents findings and conclusions of the Ingle/Honadle Partnership. It is not a statement of the views or official position of The Agency for International Development.

DEVELOPMENT MANAGEMENT ASSOCIATES
902 Ivy Ridge, #23
Syracuse, New York 13210
Phone 315-478-8254

April 1976

PREFACE

A. OBJECTIVES OF THE "PROJECT MANAGEMENT FOR RURAL EQUALITY" STUDY

The objectives of the eleven-month contract (AID/ta-c-1255) between The Agency for International Development (AID) and the Marcus Ingle/George Honadle Partnership are (1) to improve AID's capacity to design rural development projects that provide for a more favorable distribution of the benefits of AID-sponsored programs and (2) to formulate distribution guidelines to be utilized in the organizational design of projects. The rationale for the study is contained in the contractor's proposal to the AID Technical Assistance Bureau (TAB) of 1 July 1975. The study is being funded under a Technical Assistance Bureau Small Activity Research Grant. The purpose of these grants is to provide for the timely and low-cost exploration of AID-related problems which may merit further consideration following the initial study.

B. PURPOSE OF THE INTERIM REPORT

The research objectives are to be accomplished through a study which:

1. Develops indicators of socio-economic distribution
2. Develops indicators of organizational information management arrangements
3. Translates common management problems into information management terms

4. Explores significant relationships between local organization information management arrangements and levels of socio-economic distribution among the rural poor
5. Creates guidelines for the design of project management systems which facilitate favorable distributive impact of projects

This Interim Report presents the results of the first two tasks identified above, e.g., the progress to date in developing socio-economic distribution indicators and indicators of organizational information management arrangements. Both sets of indicators are presented in an applied social science format. This should assist AID personnel to deal with the difficult distribution issues involved in implementing the U.S. Foreign Assistance Act.

C. ACKNOWLEDGEMENTS

The staff expresses its appreciation to the various personnel who provided us with information and encouragement during the preparation of this report. At AID, Jerome French, Director of the Office of Development Administration, and E. Thomas Chapman, Project Officer, provided valuable guidance and continual administrative support. Additional AID assistance was provided by: Edgar Owens, Robert Berg, Jonathen Silverstone, Carl Fritz, Helen Vaititus, Gerald Schwab, Donn Block, James Hoath, Joe Davis, Larry Rosen, Don McClelland, Martha Horsely, Ken Kornher, Paul Worthington, Harry White, and the numerous Maxwell International Development Seminar (MIDS) participants

who helped us develop and apply our original distribution ideas in an AID project management context. Outside of AID we extend our thanks to the following: Robert Iversen, James Carroll, Irving Swerdlow, Marshall Segall, James Vedder, William Pooler, Charles Levine and Rudi Klauss of Syracuse University; Donald Mickelwait, Charles Sweet, Roger Swenson and the remaining staff of Development Alternatives Incorporated (DAI); Uma Lele and Igbal Soban of the World Bank; and John Mellor and Norman Uphoff at Cornell University. Finally, we extend our gratitude to our research staff including Sandra Roshia, Beth Walter, Ana Coon and Laurie Nikolski for their most enthusiastic contribution.

Marcus Ingle
George Honadle

Syracuse, New York
April 1976

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PART I
RESEARCH FOCUS AND OVERVIEW

INTRODUCTION

This report is the interim submission of an exploratory study on the role of project organization in socio-economic distribution.* The major objective of the study is to formulate tentative project guidelines which AID managers can use in designing and implementing projects that provide for a favorable distribution of benefits to the rural poor. This report presents the results of the first phase of the study. The focal concern of this phase is to identify and appraise project-specific indicators on which the remainder of the research will be based. The introductory comments which follow outline the focus and approach of the "Project Management for Rural Equality" study and place this Interim Report in perspective.

THE RESEARCH PROBLEM

The 1973 Foreign Assistance Act legislates a major restructuring of U.S. foreign aid policy. The Act states that highest assistance priority should be given to programs which "...directly improve the lives of the poorest...people and their capacity to participate in the development of their countries." The fundamental policy reorientation in the Act, according to the AID Working Group on the Rural Poor, is its "...new emphasis on equity considerations and more effective overall integration of functions and activities..." which affect the poorest majority (largely rural inhabitants) in the less developed countries.

*In this study socio-economic distribution is concerned with who (which disaggregated population segments) receives the benefits accruing from development projects.

In 1973 AID began a comprehensive effort to articulate the Congress' "New Directions" and develop responsive implementation strategies. AID's performance in this endeavor is presented in a detailed Congressional report, Implementation of 'New Directions' in Development Assistance, dated July 22, 1975. The report demonstrates that substantial progress has been made. However, it is obvious that complete adherence to the mandate awaits a better understanding of the development process in the poorest rural areas. In commenting on the difficulty of this task, the report notes,

Determining the precise application of general development approaches in specific cases remains, despite all our efforts and those of thousands of practitioners and scholars alike, a very murky, difficult, uncertain, complex, and intractable business. The rapidly changing circumstances and conditions, the special conditions of individual societies, the vagaries of the international economic system, and so forth, all suggest that modesty, especially as we confront other nation's problems, should be an important governor on our actions. (p. 4)

Few of AID's implementation problems are more uncertain or intractable than those of assuring that the benefits of assistance programs in fact accrue (all good intentions aside) to members of the poorest majority. The reasons for this are complex. However, one obvious constraint is the lack of theoretical and applied knowledge with respect to distributive dimensions of rural development. In fact, at this time, little is known either about the measurement of distribution in a rural development project context or about the factors influencing the distribution of development project benefits, even though such knowledge is critical with respect to Congressional goals. The central research problem addressed by this study, therefore, is the lack of distribution knowledge which can be utilized in implementing the Congressional mandate.

BACKGROUND AND RATIONALE

This state of affairs with respect to the distribution dimensions of development should not be viewed as surprising. Until recently, neither social scientists nor development assistance personnel gave serious attention to distribution-related issues. The state of the art was vividly pointed out by I. Adelman and C.T. Morris in their recent study on social equity in developing countries. The authors note,

The subject of national development and its effects on distributive justice clearly is characterized by little prior information. Development economics and social philosophy provide some assistance in selecting variables representing particular aspects of the development process. However, none of the subdisciplines of economics, sociology, and political science provide even partially validated models for studying the interrelations among economic, social and political change and their impact on distributive justice.¹

K.E. Boulding further affirms this when he states,

The dynamic processes by which equality--however defined or measured--is increased or decreased in society are very imperfectly understood. No social science has produced a model which even remotely resembles the complex operations of the total dynamics of society in this respect.²

Within international assistance agencies, including AID, the knowledge about distribution and its causes is also inadequate. Most agencies have now recognized

1

I. Adelman and C.T. Morris, Economic Growth and Social Equity in Developing Countries, Stanford University Press, 1973, p. 5.

2

Kenneth E. Boulding, "Equality and Conflict", The Annals, vol. 409, September 1973, p. 5.

that the distribution question of who benefits and who loses is critical. However, efforts to collect and analyze systematic distribution data in rural areas are still in the design stages. AID, for example, implicitly recognizes the importance of distribution issues in project selection and design. A statement to this effect is found in the AID Project Assistance Handbook, Appendix 3B, effective September 1, 1975. The book states,

Projects which assist the greatest number of low income people to increase their productivity and to increase their earnings are a preferred alternative. Analysis of project impact on both numbers of people and productivity will provide a guide to selecting the alternative. Among the preferred alternatives that target the largest number of the population in lower income groups, especially in agriculture production, the selection of those alternatives that focus on women should be made, especially where production by women is of greater importance than that of men. (p. 3B-1)

AID also recognizes that more research attention should be given to distribution-related issues. Several recent reports which stress this need include: The Bureau for Program and Policy Coordination (PPC) Policy Background Papers on employment and income distribution³; a contract report by D. Glynn Cochrane on methods of assessing benefit incidence⁴; a proposal by J. Silverstone of PPC to develop a benefit incidence methodology⁵; and an insightful paper by Martha Horsley of PPC which looks at relations between food production and equity⁶. The 1973 PPC

3

PPC/AID, "Employment and Income Distribution Objectives for AID Programs and Policies", October 1972; PPC/AID, "Employment and Income Distribution Objectives for Development Assistance Activities", October, 1973.

4

D. Glynn Cochrane, "Income Distribution and Methods for Assessment of Benefit Incidence", report under contract AID/otr-c-1265, 1974.

5

J. Silverstone, "A Proposal to Develop a Methodology to Estimate the Incidence of Benefits and Burdens from Development Projects", PPC/AID, January 1974.

6

M. Horsley, "Food Production and Equity in Agricultural Producer Strategies", PPC/AID, September 1975.

Policy Background Paper notes, for example,

The policy determination (on income distribution) calls for a continuing process for evaluating AID projects in terms of benefit incidence. Detailed techniques for this type of evaluation are not available. (p. 7)

And J. Silverstone comments,

The need for better prediction and evaluation of the impact of benefits and burdens exists at many points--from broad policy and planning to detailed implementation. The need cannot adequately be met by sophisticated systems that assume data and techniques which are not readily available at times and places they are required. Approaches which are recommended to fill the need must be usable within organizations where operational pressures dictate the continuous and on-schedule movement of funds and resources. That is, they must fit the operational realities of the bureaucratic and political environments in which they are to be carried out. (p. 6)

THE RESEARCH FOCUS

In designing the research study, we identified two major benefit distribution needs within AID:

- 1) The need to develop and use project-specific distribution indicators in order to monitor whether and to what extent current programs are benefiting the poorest majority.
- 2) The need to formulate and "test" project-specific distribution models in order to improve the distributive impact of future programs.

The study's research objectives are based on these needs.

The first objective is to improve AID's capacity to design rural development projects that provide for a favorable distribution of program benefits. One step in accomplishing this is to assure that distribution indicators are available which can be utilized within the AID project system. Part II of this Interim Report summarizes our progress to date on distribution indicators. These indicators serve dual purposes within the study. As mentioned above, they should be of

immediate utility to project managers involved in implementing the Congressional mandate. In addition, they constitute the dependent variable for the empirical research included in the study which will be reported on later.

The second research objective is to develop distribution guidelines for use in the organization design of projects. A necessary antecedent to the design of guidelines is the deduction and testing of a model which explains how project organizational arrangements affect levels and changes in benefit distribution. The first phase to developing the model is the identification of organizational arrangement indicators. This phase of the study is presented in Part III. A description of the overall approach followed in the study is provided below.

OUR APPROACH

Organizational design methodologies are in their infancy. Consequently, our approach is extremely tentative and exploratory. Concern for the development of organizational design methodologies extends back more than a decade⁷, but little progress has been made since then. In fact, our work begins at the point where a recent organizational study ends.⁸ We approached the study in the following manner.

(A) In order to push forward, we first made some assumptions which are heavily supported in the literature of Public Administration and Organization

7

J.D. Thompson (ed.), Organization Design and Research, Pittsburgh: Pittsburgh University Press, 1966.

8

R. Ebert and J. Mitchell, Organizational Decision Processes: Concepts and Analysis, New York: Crane, Russak and Co., 1975; Chapter 12, "Issues for Action and Design", pp. 267-286.

Theory. Those assumptions are the following:

1. There is no clear-cut demarcation between politics and administration. That is, administrative structures and processes influence policy impact and therefore the choice of implementing organization and managerial approach will affect the success of projects aimed at the rural poor.
2. All organizations tend to displace the original goals which led to their establishment and adopt a goal of self-conscious survival. Also, project managers tend to identify with "their" projects and attempt to make them "successful" by external standards in order to further their own personal goals.
3. The viability of an organization depends greatly upon its "fit" with its environment. If value orientations necessary for organizational survival cannot be mobilized or if the organization structure does not facilitate interaction with critical environmental elements, the chances of effectiveness and survival are greatly reduced.
4. If the above assumptions are valid, then an astute and informed observer should be able to identify inter-relationships between administrative arrangements and policy outcomes (given certain contingencies, a margin of unpredictability and awareness of the critical variables in the specific context). Furthermore, it should be possible to extract action guidelines applicable to the situation from an assessment of the situation.
5. It is also assumed that an a-historical approach to the design of organizations is antithetical to applied social science, which is concerned not as much with general laws as with the determination of specific situational relationships in order for action to produce desired outcomes.
6. And finally, we assume that there is no "one best way" to organize in a specific context. Optimal solutions are not possible for organizational problems. When dealing with fluid (and consciously changing) social dynamics, "satisficing" behavior is followed. That is, we must aim for satisfactory project interventions rather than perfect ones. Only when dealing with closed mechanical systems are optimal solutions possible, and when attempting to reach the rural poor we are not dealing with closed mechanical systems.

There was also one other criterion applied to the above assumptions--they must not be contradicted by our own personal experience in developing nations. None were.

(B) With these assumptions given, we then proceeded to develop a preliminary theoretical statement of the role of organizations in socio-economic distribution. This statement is both supported in the Development Administration literature and consistent with an information systems analysis of organizational dynamics and effects. It is found in Part III of this Interim Report.

(c) With this perspective in mind, we then moved toward indicator development. The indicators required include the following:

1. A typology, with indicators, of socio-economic distribution. These would allow an observer to identify: states of distribution, historical changes occurring, and different possible distributive goals.
2. Indicators of organizational information management arrangements which can be: theoretically linked to distribution goals and dynamics, and allow theoretical estimates of the impact of alternative project arrangements on those goals.

This is the point reached in this report. It should also be noted that these preliminary conclusions and indicators are subject to modification during the remaining stages of this project.

(D) With the theory and indicators of significant dynamics outlined, the next step is an application to studies of development projects to either "test" the theory or point to data needs required to do so.

(E) Finally, using whatever data can be mustered, action guidelines or design principles must be extracted from the studies as interpreted by the theory. These guidelines can be seen as intervention hypotheses which can be incorporated

into project design and tested through a combination of quasi-experimental research applications and the Logical Framework for Project Design Methodology.⁹ Thus, the guidelines (hypotheses) can be stated in Logical Framework language. Such guidelines also require continuous evaluation and refinement.

THE PRESENTATION FORMAT

The thrust of this research is toward providing project managers with practical methods of conceptualizing, measuring, and influencing the distributive impact of development efforts. To accomplish this, the presentation format will be oriented to the needs of project personnel. Parts II and III will contain three major sections. First, a specific problem confronted by project managers interested in responding to the 1973 FAA's "New Directions" will be identified. For example, it will be pointed out that the measurement of distributive impact is currently inadequate in more USAID-funded projects. Then, as a second step, social science generalizations focusing on the problem cause will be set forth. These generalizations will be drawn from existing theoretical and empirical studies and will represent consensus findings. Continuing with the same example, the generalizations will focus upon ways of measuring distribution. The third and final stage will be to develop a recommended focus for translating generalizations into practical project management applications. This will be done through reference to the Logical Framework. For example, in designing and redesigning projects, AID should ensure that acceptable distribution indicators are available. Sample distribution indicators at different Log-Frame levels are provided. The recommendations are inferred from the generalizations and thus have a scientific character. They differ from the generalizations

9

For a similar but not identical approach to guideline development, see: J. Rothman, Planning and Organizing for Social Change: Action Principles from Social Science Research, New York: Columbia University Press, 1974.

in that they are oriented toward applying social science experience to the identification of specific project-related problems.

The action guidelines, which will be found in the final report, will outline the context in which various factors will be significant and offer design principles for a range of combinations of goals and situations. These action guidelines can be viewed as management hypotheses which need to be subjected to continuous evaluation and refinement.

PART II
SOCIO-ECONOMIC DISTRIBUTION INDICATORS

INTRODUCTION

This section develops a preliminary classification scheme for socio-economic distribution indicators. These indicators are an integral part of the empirical research to be conducted later in this study. In addition, they are a critical component of AID's effort to implement the Congressional mandate--only with distribution indicators can AID demonstrate that the benefits of its programs are properly accruing to the poorest majority.

The presentation format follows the approach outlined in Part I. First, a major problem area is identified. It emphasizes the need within assistance programs to appraise the distributive impact of development activities. Second, generalizations drawn from social science literature introduce a classification scheme for distribution indicators. These generalizations point to useful ways of disaggregating information in an AID project setting. Finally, exemplary socio-economic distribution indicators are presented for each of AID's major sectors: food and nutrition; population planning and health; and education and human resources development. Instructions on the steps to follow in developing AID project-specific distribution indicators are provided.

In approaching this part of the report, the reader should be reminded of the preliminary nature of distribution research in less developed areas. As stated in AID's Implementation Report to Congress, "Data is scarce on which to develop sound projects or to determine how the poor majority benefits--or

loses--from development." This part of the report represents a modest beginning toward developing useful measures of socio-economic distribution.

PROBLEM STATEMENT

The concern over distribution issues has become increasingly evident to development scholars and international assistance agencies in the past several years. Policy pronouncements on "equity" and "equal distribution" are now evident in most assistance programs. These policies are based on much more than subjective and ethical judgments.¹ Rather, they have emerged in direct response to the inadequacy of traditional development approaches. They refer to the impoverished, and seemingly intractable, condition of the poor majority in most of the less developed countries. As H. Chenery of the World Bank vividly notes,

It is now clear that more than a decade of rapid growth in underdeveloped countries has been little or no benefit to perhaps a third of their population. Although the average per capita income of the third world has increased by 50% since 1960, this growth has been very unequally distributed among countries, regions within countries, and socio-economic groups. Paradoxically, while growth policies have succeeded beyond the expectations of the first development decade, the very idea of aggregate growth as a social objective has increasingly been called to question.²

1

In this study "equal distribution" or "equality" is preferred over the term "equity". "Equity" usually implies a culturally subjective value judgment concerning the "just" distribution of some good. "Equality" and "equal distribution", on the other hand, are subject to more objective measurement and are thus less ambiguous. The latter terms are somewhat awkward semantically because one ends up referring to "more equal" or "less equal" distributions, which is an apparent contradiction. Nevertheless, we will accept the common usage of "more" and "less" to denote comparative distribution states.

2

Hollis Chenery et. al., Redistribution with Growth, Dondon: Oxford University Press, 1974, p. xiii.

The equality objective is a major component of the U.S. Foreign Assistance Act. The Congressional intent is clear--the U.S. assistance program is to be conducted so that its benefits accrue to members of the poorest majority. The "Social Soundness Analysis" Appendix of AID's Project Assistance Handbook recognizes this. The section on social consequences and benefit incidence states,

Both the project itself and its spread to a wider population will affect different groups in different ways. Some groups will be better off and some worse off. The increasing concern with reaching the poor and those groups hitherto largely by-passed in the development process--such as women--creates a special need to identify the differential social impact of a project and particularly how it will affect the poorer groups. (p. 5a-10)

AID's implementation strategy for reaching the poor is summarized as follows:

As AID's resources--like those of other donors and of the LDC's--are limited, it is normally impractical to think of AID-financed programs affecting directly the entire poor majority in any country, much less moving it beyond the benchmarks in the near term....While AID-financed programs must attempt to reach large numbers of poor people, AID's primary target group will often be a limited portion of the poor majority in each country, depending on its economic and social conditions, its capabilities and desires, and other considerations which determine the programs yielding the most impressive benefits at least cost. AID's programs will also be designed to yield secondary benefits to as many possible among the poor, and certainly to avoid worsening the plight of the poorest. Once again, we recognize the difficulty of tracing out exactly who is affected by an activity and what the long-range consequences are.³

3

Agency for International Development, Implementation of "New Directions" in Development Assistance, Washington, D.C., 1975, p. 6.

In view of this strategy, it is pertinent to inquire about AID's operational capacity with respect to distribution issues. Does AID's current approach to distribution assure that the poor are benefiting from assistance efforts? Are ongoing rural development projects designed to measure distributive impact? Are meaningful and practical project-specific distribution measures available to field personnel? These questions are addressed below.

What is IAD's approach to distribution? Is it adequate? AID development personnel currently take an indirect approach to the distribution issue. That is, their primary concern is in determining whether the target group falls within a poverty category as defined by the AID benchmarks.⁴ If a target group meets the poverty criteria, it is common practice to assume that the target group will benefit from assistance programs directed toward them. Thus, there is little emphasis placed on measuring the actual distributive impact of development projects. The indirect approach is obviously inadequate. Its major shortcoming is noted in the Project Assistance Handbook as follows,

In assessing benefit incidence it is necessary to bear in mind that the recipient of the goods and/or services provided under a project is not necessarily the person to whom the major benefits of the project accrue. A tenant farm family, for instance, may receive new seeds, fertilizer, and credit to pay for them and their yield may rise. But the landlord may raise the rent and appropriate the lion's share of the incremental income flow. (p. 5a-10)

4

The benchmarks are used by AID to define the poorest majority. Falling short on any one of these benchmarks is enough to place someone within the poverty category. They include: (1) per capita income below \$150 per year; (2) daily diet of less than 2,160-2,670 calories (depending on the country); (3) several health indicators: life expectancy at birth of below 55 years, infant mortality over 33 per 1,000 children aged 0-1, birth rates over 25 per 1,000 population, or access to broadly-defined health services for under 40% of the population.

Evidence on the precise state of distribution measurement in AID projects is limited. To our knowledge there are no recent studies which address this issue.⁵ However, it is our strong impression based on (1) the review of many program and project documents, (2) discussions with AID/Washington and field personnel and (3) a review of project design and evaluation training materials, that distribution measures are poorly understood and sparsely used in managing AID projects. This supports the conclusion drawn by Iowa State University in their review of the Practical Concepts Incorporated (PCI) assessment of AID indicators. In the projects reviewed by PCI in 1972,

...none of the...indicators could be considered as of the distribution indicator-type. Had any of the ten indicators under the output column been disaggregated by such categories as rural/urban, male/female age levels, ethnicity or social classes, then they could have been described as output distribution indicators. In this way, outputs from the agriculture sector important for human survival, such as food production, could be examined in terms of their distribution for consumption among the varying groups of society.⁶

5

Although it is beyond the scope of this study, we believe a survey should be undertaken to review progress toward the Congressional mandate with respect to benefit distribution.

6

Leslie D. Wilcox et al., An Application of Methodological and Theoretical Criteria for Indicators of Social Development in the Analysis of Selected A.I.D. Operational Indicators, Concepts, and Data, No. 2 (Preliminary), Iowa State University, April 1973, pp. 3-17.

The sparse use of distribution indicators is also reflected by their absence from the Latin American Bureau's computerized indicator retrieval system.⁷

The conclusion which can be drawn from this discussion is that AID currently lacks the operational capacity to deal with distribution issues in a project context. AID project and program officers simply do not have access to practical project-specific distribution measures which can be readily understood and applied.⁸ This is the research problem addressed in this part of the study. The research need, as J. Silverstone of PPC/AID succinctly puts it,

...is to develop an approach or approaches which will assist people who design, review and carry out development activities to articulate and improve the assumptions which must be made on the distribution of benefits and burdens to evaluate programs and projects before they are decided upon, while they are being carried out, and after they are completed.⁹

⁷
Gerald Schvab, "Progress Indicator Retrieval Program", Latin American Bureau, AID, 1975.

⁸
This is not to say that integrated indicator systems do not exist. Many excellent systems have been developed, some of which will be reviewed in the following sections. Our only point here is that the existing attempts have not been AID project-specific and are thus not being extensively applied within AID.

⁹
Jonathan Silverstone, "A Proposal to Develop a Methodology to Estimate the Incidence of Benefits and Burdens from Development Projects", PPC/AID, January 7, 1974, p. 6.

Given this problem, the remainder of Part II concentrates on developing an AID-specific distribution classification scheme. This is accomplished by examining benefit distribution and development indicators within the framework of AID's project system.

GENERALIZATION: A SYSTEMS HIERARCHY APPROACH TO DISTRIBUTION

Distribution has many dimensions and can be analysed from different perspectives.¹⁰ If distribution indicators are to be developed, an approach is required which reflects the complexity of the development process and allows for project-specific measurement of distribution over time.

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Some of the relevant development literature on distribution not mentioned in other segments of the report include: The Annals, Issue on Income Inequality, vol. 409, 1973;

A.B. Atkinson, "On the Measurement of Inequality", Journal of Economic Theory (2) 1970.

W.R. Cline, "Distribution and Development: A Survey of Literature", Journal of Development Economics, North-Holland, 1975.

C. Elliott, Income Distribution and Social Stratification: Some Notes on Theory and Practice, Journal of Development Studies, vol. 8, April, 1972.

F. Harbison, "The Connection Between Education and Income Distribution", Princeton-Brookings Income Distribution Study, August, 1974.

J. Kocher, Rural Development, Income Distribution and Fertility Decline, The Population Council, 1973.

J. Mellor, "The Impact of New Agricultural Technology on Employment and Income Distribution-Concepts and Policy", Cornell University, May, 1975.

L. Oftedal, "Health, Nutrition and Income Distribution", Princeton-Brookings Income Distribution Project, August, 1974.

A. Sen, On Economic Inequality, New York: Norton, 1973.

R. Szal, "Measuring Income Inequality", Princeton University-Brookings Income Distribution for LDC, December, 1974.

J. Tinbergen, Income Distribution-Analysis and Policies, North Holland, 1975.

P. Wiles, Distribution of Income: East and West, New York, American Elsevier, 1974.

A systems hierarchy approach to distribution measurement is utilized in this study. This approach focuses on developing distribution indicators through a disaggregation process. That is, distribution indicators reflect the absolute or proportionate shares of some good accruing to a disaggregated segment of the population. In this approach, distribution indicators supplement common aggregated indicators in measuring levels and changes in rural development .

There are several reasons for choosing this approach to distribution. They include:

- (1) The theoretical and empirical literature identifies the systems hierarchy approach as appropriate and useful in developing disaggregated distribution indicators.
- (2) The systems approach to distribution allows for simultaneous measurement along several disaggregated dimensions. This is required if indicators are to be developed which reflect actual distribution patterns in rural areas.
- (3) Since the underlying rationale of AID's "Project Logical Framework" is the systems hierarchy approach, distribution indicators developed from this perspective should readily "fit" into new and redesigned AID projects.

The rationale and supportive evidence for the systems hierarchy approach is discussed in more detail below.

DISTRIBUTION AND THE SYSTEMS APPROACH

The systems approach is an analytical framework for understanding complex situations at different levels of abstraction and scale. Systems

are hierarchical.¹¹ This hierarchy, or presence of different system levels, has been defined by A. Kuhn as "...any relation between systems in which one is a subsystem or suprasystem relative to another system."¹² A rural development example will help demonstrate the concept of system levels. A development project with a particular geographical target focus can be viewed as a system. Individual representatives from various subproject areas might be looked at as the elements of the system. These representatives would interact with both one another and with the project level staff. The subsystems would encompass the various subproject administrative and/or geographical areas. At this level, the individual subproject representatives are elements of the subsystem as they interact with subproject residents (other subsystem elements). Likewise, a higher or suprasystem project level such as a regional area encompassing several different interacting projects can be identified and analysed.

As this example suggest, the concept underlying the systems levels approach is aggregation and disaggregation into important elements or components. This approach is applicable to the measurement of distribution. From a systems hierarchy perspective, distribution measurement entails moving from one system level to a lower system level. Thus distribution requires the reduction of data to an element which is parallel or below the hierarchical level of the observer.

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J. Van Gigch, Applied General Systems Theory, New York: Harper and Row, 1974; R.L. Ackoff, Redesigning the Future: A Systems Approach to Societal Problems, New York: Wiley-Interscience, 1974. D.Katz and R.Kahn, The Social Psychology of Organizations, New York: J. Wiley and Sons, 1966; H. Pattee (ed.), Hierarchy Theory: The Challenge of Complex Systems, New York: Braziller, 1973

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A.Kuhn, The Logic of Social Systems, San Francisco: Jossey-Bass, 1974.

Distribution of goods and growth of goods have a systemic relation with one another. That is, the absolute amount or growth of some good at a subsystem level is a component of the relative distribution of that good at the system level. These relationships are described for a rural development project example in Figure 1. On the basis of this, two observations are possible. Knowing levels of project benefits accruing to each individual (or household) in a subproject area over time (i.e. having disaggregated data) permits one to measure changes in both growth and distribution. However, knowing changes in aggregate subproject growth levels alone tells one nothing about changes in the relative amounts of benefits accruing to each individual (or household).

AID project managers, therefore, need access ^{To} disaggregated subproject data, e.g. the relative amounts of project benefits accruing to rural individuals and households. This need for measuring benefit distribution with disaggregated measures is clearly presented in the Iowa State social indicators study. It states,

In the study of well-being, researchers tend to disregard the well-being of people as they make up the subsystems and instead measure well-being as an aggregate at county, province, state, and nation-state levels. These measures, while useful, tend to disguise what happens to relevant groups in society. Other less extreme aggregations are required also if we are to determine the distribution of life chances or well-being...Rapid economic growth is not synonymous with the elimination of poverty and in fact it may widen income differentials rather than narrow them. (Italics in original)¹³

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L. Wilcox et. al., A Methodology for Indicators of Social Development, Report 3, Department of Sociology, Iowa State University, September, 1973, p. 26.

FIGURE 1: RELATIONSHIPS BETWEEN GROWTH AND DISTRIBUTION AT DIFFERENT DEVELOPMENT LEVELS

Distribution of development benefits in LDC among different project areas with high concentration of rural poor means:



Growth with various projects but not internal project distribution.

Project-wide distribution of benefits to sub-project areas means:



Growth at sub-project level but not internal sub-project distribution.

Sub-project distribution of benefits means:



Individual growth.

Individual growth is a necessary but not sufficient condition for individual well-being.

A rural development project example may help to demonstrate the utility of disaggregation in an operational setting. Suppose you are an AID project officer in an LDC responsible for an Agricultural Resources Project. The goals of your project, let us assume, are to improve the quality of life and well-being of the poorest majority in the project area. The specific goal indicator utilized in this project is to increase per capita income of subproject residents to more than \$150 per annum.¹⁴

Now let's assume that the project lasted for five years (1971-1976) and has recently been completed. Pre- and post-project data (including demographic, health and nutrition in addition to income) for residents in one subproject area

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Goal indicators for AID projects, all of which focus on improving quality of life and well-being, are defined in terms of the AID benchmarks as follows: (1) Increase per capita income to more than \$150; (2) Increase daily calorie intake to 2,500; (3) Increase life expectancy at birth to 55; (4) Decrease infant mortality to less than 33 per 1,000 children aged 0-1; (5) Decrease birth rates to under 25 per 1,000; and (6) Provide access to health services for more than 40% of the population.

An earlier version of this example was devised by the authors as a distribution exercise in the AID-sponsored Maxwell International Development Seminars (MIDS) at Syracuse University.

are provided below:

	<u>Pre- Project</u>	<u>Post- Project</u>
Sub-Project Population	12,000	12,000
Number of Households	2,000	2,000
Average Size of Households	6	6
Household Occupations: Agri.	95%	95%
Household Occupations: Non-agri.	5%	5%
Per Capita Income	\$100	\$200
Daily Calorie Intake	2,400	2,500
Life Expectancy at Birth	53	54
Birth Rate Per Thousand (Yearly)	25	25
Inhabitants with Access to Adequate Health Services	40%	40%

Assuming that changes in post-project data can be attributed to the Agricultural Resources Project, what conclusions can be drawn about the project's contribution to the Congressional mandate? Are there fewer "rural poor" following the completion of the project?

The answer to these questions is that no conclusion is possible. This is because the data is aggregated at the subproject level--it is an average. In order to know who actually gained and/or lost from the project (in both absolute and relative terms), disaggregated subproject data is also required. For example, let's assume that a sample household income survey was conducted for generating the aggregate pre- and post-project data. Then this survey could be used to generate the data in Table 1. The hypothetical data demonstrates that in an absolute sense the poorest 25% of the population are no better off following the project. The next 25% are slightly better off. The third 25% have gained relatively more but still fall short of the AID poverty benchmark. The highest 25% (who, by the way, did not qualify for project assistance on the income

Table 1: Hypothetical Agricultural Resources Project
Distribution Data at Pre- and Post- Stages

PRE-PROJECT (1971)				POST-PROJECT (1976)			
% of house- holds (Num= 2000)	Income Shares	% of Income	Per Capita Income for Seg- ments of the Popu- lation	% of house- holds (Num= 2000)	Income Shares	% of Income	Per Cap. Income for Seg- ments of the Popu- lation
25%	120T	10%	\$40	25%	120T	5%	\$40
25%	130T	15%	\$60	25%	240T	10%	\$80
25%	300T	25%	\$100	25%	360T	15%	\$120
25%	600T	50%	\$200	25%	1680T	70%	\$560
100%	1200T	100%	\$100	100%	2400T	100%	\$200

T=Thousand U.S. \$

benchmark to begin with) more than doubled their income. Moreover, in a relative sense the lowest 75% of the residents are worse off than ever before.¹⁵

Disaggregated data is required if project managers are to comply with the distribution intent of the Congressional mandate. A tentative scheme for doing this will now be considered.

A DISTRIBUTION CLASSIFICATION SCHEME

Measuring distribution is difficult in several respects. First, as mentioned earlier, distribution is a complex and segmented process. It presents problems of proper identification and accurate measurement. Second, since the emphasis on distribution is recent, it is difficult to define and measure it in a way that is clearly understood by development practitioners. The classificatory scheme suggested here takes both of these points into consideration.

The question of what to measure is largely determined by the AID poverty benchmarks. These benchmarks provide operational measures of quality of life and well-being. What needs to be measured, therefore, is the extent to which AID projects contribute to improving the conditions of those individuals who meet the poorest majority criteria. In doing this, it is not enough to measure changes in socio-economic conditions. It is also

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The "Gini Coefficient" is a statistic which measure degrees of "equality" and permits relative comparisons over time. The coefficient runs from 0 to 1.0. The larger the coefficient, the greater the inequality reflected in the data. The following Income Gini Coefficients were derived from the above examples: Pre-project: .325, Post-project: .500.

necessary to attribute the changes to flows of goods and services produced by development projects.¹⁶ (Accordingly, the theoretical model devised in Part III of this study will be required to account for the process of distribution and not just its static manifestation at any point in time.)

Distribucion needs to be measured in a way that is readily understood. This can be done by disaggregating measures along two significant distribution dimensions: the vertical and/or the horizontal.¹⁷ Figure 2 presents a distribution classification scheme. The distribution alternatives are described below.

The vertical distribution dimension assumes an ascending scale (e.g., such as percapita income) and disaggregates along segments of that scale. For example,

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J. Drewenoski, "Social Indicators and Welfare Measurement: Remarks on Methodology", Journal of Development Studies, vol. 8, (April, 1972), p. 81. Procedures for accomplishing this are very complex. Fortunately, AID's existing project management system, specifically the Logical Framework Approach to project design and evaluation can be adapted to handle distribution questions. As The Project Assistance Handbook notes,

The Logical Framework Methodology gives no guidance on questions of equity or benefit incidence such as equitable income distribution, employment opportunities, access to resources, popular participation in decision making and in the fruits of development projects unless such aspects have been explicitly included in the statements of goal or purpose. (underlining added), p. 3E-2

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These dimensions should not be confused with the vertical and horizontal axes of the Logical Framework Matrix which will be introduced in the following section.

Figure 2: Distribution Classification Scheme

		HORIZONTAL DIMENSION	
		No	Yes
VERTICAL DIMENSION	No	<p>Aggregate or Growth Indicator such as Income, Nutrition or Health</p>	<p>Shares of Aggregate Good Accruing to Divisions within an Ascending Scale (Men/Women, Merchant Farmers, Ethnic Groups, etc.)</p> <p>Example of Target Group: Women</p>
	Yes	<p>Shares of Aggregate Good Accruing to Segments of an Ascending Scale (Income, Calories, Acreage, Assets, etc.)</p> <p>Example of Target Group: Villagers with low incomes</p>	<p>Shares Accruing to Segments within a Divided Scale</p> <p>Target Group: Women with low income relative to (1) Men with same income and (2) Women with other levels of income</p>

simple bar graphs can be used to look at the number and/or percentage of inhabitants in a project area that fall within particular income ranges over time. Figure 3 shows bar graphs of pre- and post-project vertical income distribution using data from the Agriculture Resources Project example.

A second way of disaggregating data is to look at it along a horizontal dimension--that is, within a division of one segment of an ascending scale. For example, within a segment of the scale one might be interested in monitoring the portions of some good accruing to women as compared to men or to tenants as compared to landowners. This dimension can also be depicted on a graph and compared over time (see Figure 3). Finally, it is possible to combine these approaches and examine the target population along both vertical and horizontal distribution dimensions. An example of this is also presented in Figure 3. The example shows the comparative pre-post sub-project distribution data for net income and ethnic status.

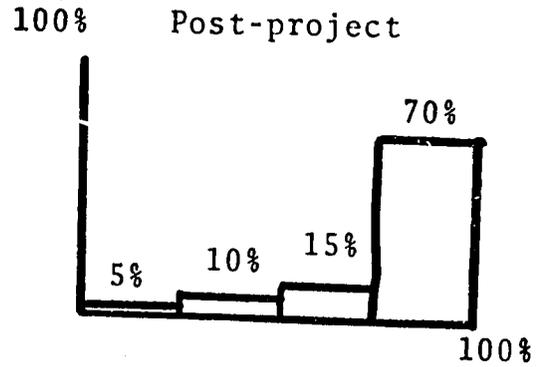
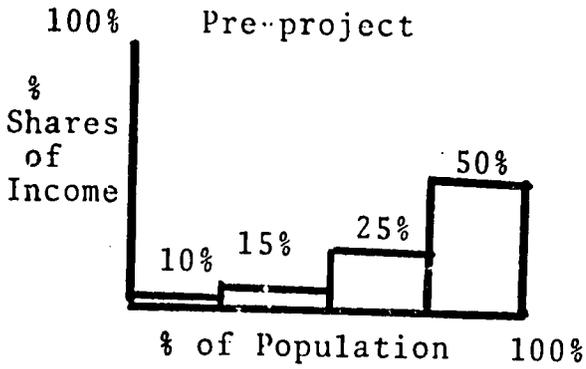
Using this classification scheme, several distribution measurement categories can be developed which are congruent with the Congressional mandate.¹⁸

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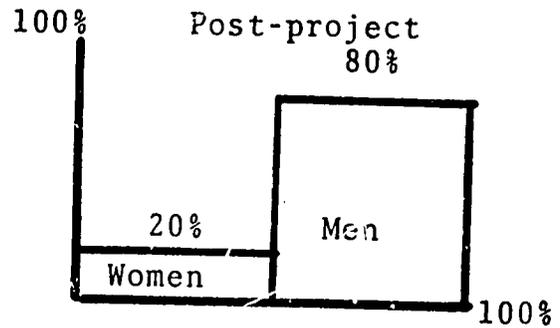
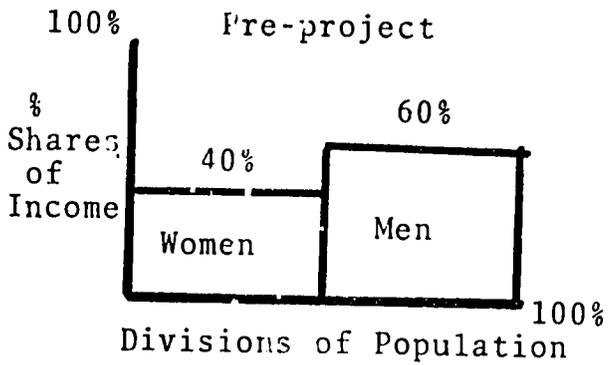
It is possible, using the classification scheme presented above, to develop a myriad of distribution categories based on various theories about the ultimate goals of rural development. For purposes of this study, we are taking AID's definition of poverty, as measured by the aforementioned benchmarks, as the ultimate goals. We feel this is the legitimate boundary within which an AID project officer can operate.

Figure 3: Bar Graphs Illustrating the Dimensions of Distribution

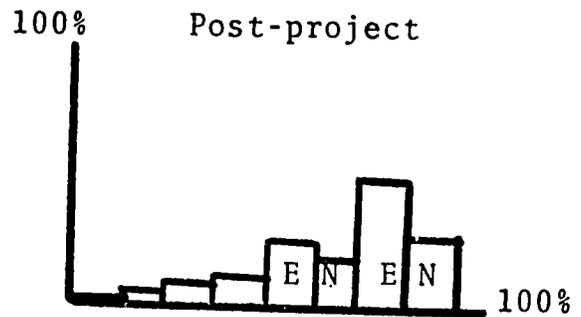
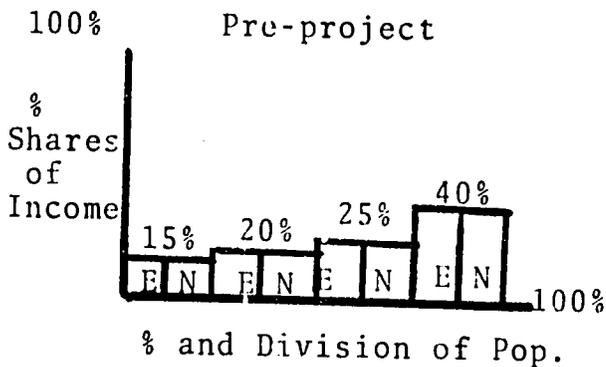
Vertical Dimension



Horizontal Dimension



Vertical/Horizontal Dimension



(E=Majority Ethnic Group; N=Minority Ethnic Group)

The vertical dimension includes a minimum of three separate categories as identified by the AID poverty benchmarks. These include:

- (1) economic status as measured by annual per capita income;
- (2) nutrition status in terms of caloric intake;
- (3) health status as reflected in infant mortality rates.

The economic, nutrition, and health status categories can each be measured along an ascending or vertical scale. A distribution statistic, such as the Gini Coefficient, can be developed for each of them and compared over time.

The horizontal distribution categories are less universal with the exception of the women/men emphasis provided by the Percy Amendment to the FAA. Appropriate horizontal categories in a project will depend upon local conditions. However, it is also likely that one of the following will be important in most rural development project settings:

- (1) occupation (whether it is agriculture or non-agriculture);
- (2) land status (whether land is owned or not);
- (3) ethnic/class position (whether one is a majority or minority ethnic group).

By focusing on the horizontal dimension, it is easy to assess the proportion of some good accruing to distinct groupings in a rural area.

The joint vertical/horizontal dimension combines the measurements of the above categories. It allows comparison, for example, of changes in relative distribution of women's versus men's caloric intake resulting from a project. If distribution is broken out and measured along these dimensions, a project officer can monitor changes in rural equality during the life of a development activity.

DEVELOPMENT INDICATORS

An indicator as defined by Iowa State University is a statistic that is characterized by the following criteria:

- a) An indicator is an indirect measure (e.g., the statistic 'mortality rate') of (i.e., which provides information about) some concept or generalized condition (e.g., mortality 'or the human condition of a mortal or one subject to death') which itself is not directly measurable.
- b) An indicator, even though it provides information about some generalized condition which is not directly measurable, is itself quantifiable and measurable (e.g., mortality rate = total deaths / mid-year population X 1000).
- c) An indicator, in most cases, is a statistic or index aggregated from individual data.
- d) An indicator, to enhance its utility, is disaggregatable (i.e., can be broken down) by relevant attributes and/or contextual characteristics of the phenomena measures.
- e) An indicator, as a basis for monitoring change in the phenomena measured, can be measured at successive points in time (e.g., at regular intervals) and is, thereby, amenable to time series analysis of the measured phenomena over an extended period.¹⁹

In terms of the Congressional Mandate, AID needs indicators for several reasons. First, indicators are used to identify which target groups, and individuals within those target groups, fall within the category of the poorest majority. Second, indicators are needed to establish priority between target groups, when funds are limited. For example, indicators can be used to demonstrate which of two target groups, both falling under the definition of the poorest majority, deserves limited funds the most. Third, indicators

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L. Wilcox et. al., "An Application of Methodological and Theoretical Criteria for Indicators of Social Development", (reports), Department of Sociology, Iowa State University, April, 1973, p. 1-3.

are needed in project design to clarify the precise meaning of narrative statements about intended project impact and performance. Fourth, targeted indicators are needed to monitor project progress over time. Fifth, indicators are needed in order to evaluate whether progress (such as an increased productivity level) was due to the AID project or to some other cause external to the project.

If indicators are to perform these AID-specific roles, they have to comply with certain standards. That is, basic criteria for indicator selection and use are required to assure that indicators measure what they are supposed to (e.g., that they are valid) and that they can be compared (e.g., that they are reliable measures of the same thing over time).

The present state of indicator development in AID has recently been characterized as follows,

Despite the large amount of interest in this subject, very little is known which will enable project designers to determine whether the indicators they have chosen are valid reflections of actual progress toward the target sought, or to make optimal choices from among possible indicators. We have lists of indicators, but no authoritative basis for assessing or comparing them.²⁰

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D. Block, "AID-Sponsored Activities in the Examination of Measurement Criteria and Performance Indicators, and Related Topics", PPC/DPRE/PE, January 20, 1976.

Although no "authoritative basis" for indicator assessment exists, it is possible to cite some criteria which are valuable in most situations.²¹

A practical criteria list has been assimilated by David Klaus. The assessment indicator criteria suggested by him posit that:

1. Indicators should focus on overt, openly observable events;
2. Indicators should be as unobtrusive as possible;
3. Indicators should be quantifiable in some systematic way;
4. Indicators should have capacity to be measured continuously;
5. Multiple measures should be devised for key events for reliability and in case data does not turn up on one or more of them;
6. Ease and cost of measurement should be weighted heavily;
7. Develop measures which are potentially generalizable; to other settings.²²

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Some of the indicator criteria literature with a development focus includes:

F.M. Andrews, "Social Indicators and Socioeconomic Development", Journal of Developing Areas, 8 (October, 1973)

N.Baster, "Development Indicators: An Introduction", The Journal of Development Studies, vol. 8, April, 1972.

J.Callaghan, et. al., A Methodology for Indicators of Social Development, Department of Anthropology and Sociology and Anthropology, Iowa State University of Science and Technology, Ames, Iowa, 1974.

G.Schwab, "Indicating Improvements in Development Administration: Lessons from AID Experience and from Work in Thailand", Philippine Journal of Public Administration, U. of Philippines, July, 1973, vol. 3, #3.

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David Klaus, "Evaluation Plan for the DEIDS (Development and Evaluation of Integrated Delivery Systems) and Related Projects", American Institutes for Research, Washington, D.C., July, 1974, p. 60.

THE AID PROJECT SYSTEM

AID uses an integrated system for designing, managing, and evaluating foreign assistance programs. The project system is described in the 1975 Project Assistance Handbook. A major element in this system is the project Logical Framework Matrix (see Figure 4). The Project Handbook defines the Logical Framework as,

A summary, in matrix form, of project design, showing the results expected for each level of intent when a project is successfully completed. Results are expressed as objectively verifiable targets together with means of verification and controlling assumptions. (p. 3E-14)

The Logical Framework Matrix is used in AID to (1) define project inputs, outputs, purposes and goals; (2) hypothesize causes of linkages between inputs, outputs, purposes and goals; and (3) establish indicators that permit subsequent measurement or verification of the achievement of the desired inputs, outputs, purposes and goals.

The Logical Framework has two major axes or logics--a vertical and a horizontal. The vertical logic encompasses levels of narrative statements along with assumptions, and causative linkages between them. The horizontal logic includes the narrative statements, the indicators of the narrative, and the means of verifying or gathering data on each indicator.

The vertical logic (e.g., the causative linkages connecting the input-output, output-purpose, and purpose-goal levels) contains a series of successive hypotheses. That is, it can be hypothesized that if project inputs are combined with important assumptions, then outputs will occur. If outputs occur along with certain assumptions, then this will contribute to purpose achievement. Likewise, achieving the purpose and having certain critical assumptions in place will then help to accomplish the project goal.

FIGURE 4: THE LOGICAL FRAMEWORK MATRIX WITH OFFICIAL DEFINITIONS

Modification No. 4

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: _____
From FY _____ to FY _____
Total U. S. Funding _____
Date Prepared: _____

Project Title & Number: _____

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program or Sector Goal: The broader objective to which this project contributes:</p> <p>The reason for the project, the desired end toward which the efforts are directed</p>	<p>Measures of Goal Achievement:</p> <p>The means of verifying through indicators of the Goal</p>	<p>The way that the indicators can be objectively verified</p>	<p>Assumptions About Linkage Between Project Purpose and Program-Sector Goal</p> <p>An event or action, over which the project team has little control; A condition which must be assumed to exist if Goal is to be achieved</p>
<p>Project Purpose:</p> <p>That which is expected to be achieved if the project is completed successfully and on time</p>	<p>Conditions that will indicate purpose has been achieved: End of project status.</p> <p>The objectively verifiable condition which is expected to exist if the project achieves its purpose</p>	<p>The way that the indicators can be objectively verified</p>	<p>Assumptions About Linkage Between Outputs and Project Purpose</p> <p>An event or action, over which the project team has little control; A condition which must be assumed to exist if Purpose is to be achieved</p>
<p>Outputs:</p> <p>The specific kind of results that can be expected from good management of the project inputs</p>	<p>Magnitude of Outputs:</p> <p>The magnitude of the results and the projected completion dates</p>	<p>The way that the indicators can be objectively verified</p>	<p>Assumptions About Linkage Between Inputs and Outputs</p> <p>An event or action, over which the project team has little control; A condition which must be assumed to exist if Output is to be achieved</p>
<p>Inputs:</p> <p>The goods and services (budget, personnel, commodities, training, etc.) provided with the expectation of producing certain outputs</p>	<p>Implementation Target (Type and Quantity)</p> <p>Target dates of inputs by type</p>	<p>The way that the indicators can be objectively verified</p>	

Notice, as one advances from inputs to goals, the causal linkages become more tenuous. For example, there is relative certainty that inputs will lead to outputs. However, the hypothesis that if outputs, then purpose, is more tenuous. And the causal relation between purposes and goals is very uncertain.

The Logical Framework, when viewed from this perspective, can be seen as an applied social science technique for identifying and altering interactions or linkages between different system levels. A systems linkage is any interaction between system levels in which an output of one becomes an input of the other. For the Logical Framework, there are a minimum of three system levels: (1) the input/output level or the subsystem, (2) the output/purpose level or the system, and (3) the purpose/goal level of the suprasystem. Stated another way, inputs are needed before subsystem outputs can be produced, outputs plus assumptions (relating to other subsystem outputs or suprasystem inputs) need to be in place before the suprasystem goals will be accomplished.

There is widespread agreement that the vertical logic represents a series of causal hypotheses which can be evaluated in a project setting. This is desirable because it emphasizes the experimental make-up of development. The 1972 AID Evaluation Handbook points this out by noting,

Underlying the concept of evaluation is the recognition that much of what AID is doing is experimental in nature and as such cannot be expected to be successful in all cases. In fact, the development assistance process, like a scientific experiment, may be described as a series of hypotheses. (p. 16)

In actual project use, however the hierarchical nature of the vertical logic is commonly overlooked. Many AID projects fail to make an operational distinction

between logical levels. In AID jargon, they fail the independence criteria. That is, the Logical Frameworks are constructed so that it is logically impossible for one level to follow from the one below. This deficiency was vividly pointed out by PCI in its 1972 AID indicator report as follows:

Perhaps the least excusable deficiency, and one that occurred frequently, was the continued use of project outputs as purpose level indicators. Of the purpose level indicators reviewed, 401 out of 858 were considered by PCI to be outputs.²³

One reason for the misunderstanding which surrounds the vertical logic is that no standardized way exists for categorizing project outputs, purposes, and goals. It is very common for project personnel to confuse the vertical logic because there are no practical and common sense ways for distinguishing a purpose from an output from a goal. If project managers are going to design the vertical dimension of projects correctly, they need a standard categorization scheme. By standard category we refer to a generally agreed upon way of viewing the four vertical framework divisions across all development projects. In fact, a standard input category already exists. Inputs, according to the Project Handbook, are "...the actions taken or goods and services (personnel, commodities, participant training, etc.) provided..." in a development project. Other than for inputs, however, the nature of the vertical category is neither stipulated nor intuitively evident.

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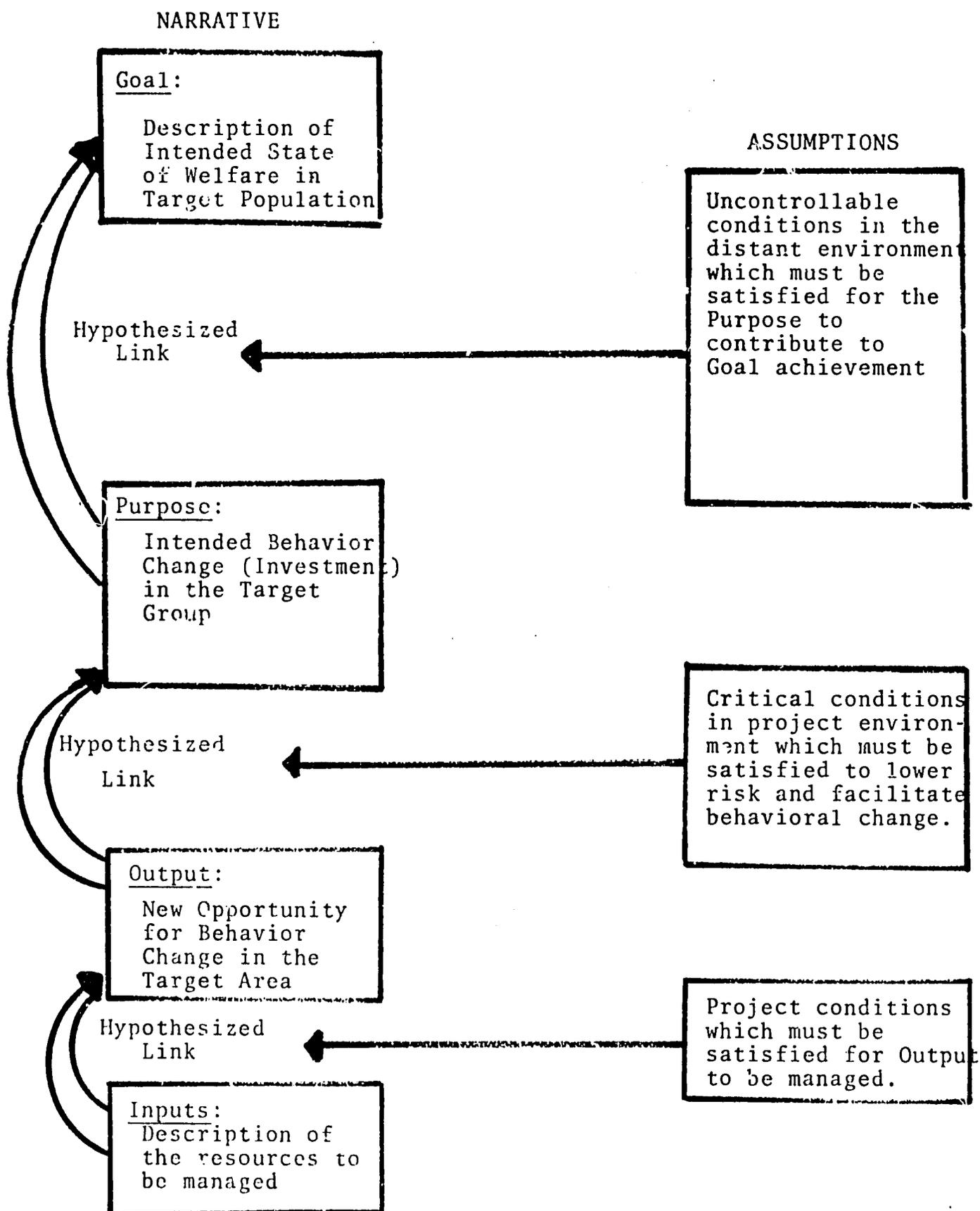
Practical concepts incorporated, "Indicators of Social and Economic Development", under contract: AID/csd 3375, November, 1972, p. 1-5.

In this study a practical social science scheme is presented for categorizing project outputs, purposes and goals.²⁴ The input category remains unchanged. Most AID personnel understand the notion of project inputs as personnel, commodities, training, etc. Project outputs are defined as the measurable things which are created or done by the provision of inputs which create opportunities for socio-economic change among the target clientele. Outputs are opportunities which the project organization provides on the expectation that a target group will change its behavior. Project purpose refers to expected "investment" as measured by behavioral changes among the target group. At this level, the critical assumptions refer to factors in the immediate client environment which influence the degree of risk or uncertainty attached to the act of investing once opportunities are provided. For example, a critical output to purpose level assumption in an agricultural training project is that farmers will perceive the risk involved in applying new techniques (the purpose) learned during training (the outputs) as acceptable. Project goals in turn reflect states of welfare or well-being which may be among the target clientele or may extend beyond them. AID has defined these well-being states in terms of income, nutrition, and health indicators as previously discussed. This way of viewing the vertical axis will be useful in establishing exemplary distribution indicators for AID projects. (See Figure 5)

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This scheme was collaboratively developed by Robert Iversen, Bill Pooler, James Vedder, Rudi Klauss, and the authors for use in the AID-sponsored Maxwell International Development Seminars (MIDS) held at Syracuse University and in the project management seminars held overseas. The authors have also applied it in a non-AID criminal justice setting and found it useful.

Figure 5: The Vertical Axis Of The Logical Framework With Standardized Categories



The major purpose of the horizontal axis of the Logical Framework is measurement. This involves stating what is expected in the narrative and assumptions columns, providing indicators for each narrative statement, and specifying how data will be generated to verify progress toward indicator targets. Since indicators, including indicators of benefit incidence or distribution, are critical to measurement, a few comments are needed on acceptable AID project indicators. Good rural development project indicators should, at minimum, meet the following criteria:

- (1) They should be objectively verifiable. As G. Schwab explains it,

The important issue addressed by any indicator is not simply the verification that an action has taken place, but rather that selection of some essential and measurable phenomena which, by its very presence, will permit a proponent of a project and an informed skeptic to agree whether or not change relative to a certain preestablished condition has taken place.²⁵

- (2) They should be targeted and time phased at every level.

- (3) They should be validated, that is, tested to assure that they measure what they purport to measure. Of the two common ways to validate indicators (e.g., using correlational analysis techniques or relying on expert consensus), obtaining consensus is most feasible in a rural development setting.

- (4) They should be project-specific. Good indicators are developed on the basis of local conditions, not discovered.

- (5) They should be selected according to their ease and cost of measurement.

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G. Schwab, "Indicating Improvements in Development Administration", Philippine Journal of Public Administration, vol. 3, 1973, p. 315.

APPLICATION: DISTRIBUTION INDICATORS AND AID'S PROJECT SYSTEM

The final step in developing indicators is to apply the distribution classification scheme developed above within the context of AID's project system. From this, a general approach can be suggested for conceptualizing and indicating the distributive impact of development projects. This approach, when fully developed, will orient the empirical research which is being conducted in conjunction with this study. The approach is also applicable in AID rural development projects.

Using the standardized category scheme introduced earlier, it is evident that each of the vertical divisions (outputs, purposes, and goals) of the Logical Framework has various distribution dimensions. A generic way to deal with distribution along the vertical axis is suggested in Table 2. An explanation and illustrations of this approach follow. For outputs, distribution focuses on who receives the opportunities created by the project. For instance, is credit only available to relatively wealthy landowners? Is farmer training predominantly available to male farmers in an area where most agricultural decisions are made by women? Are off-farm employment opportunities disproportionately available to the dominante ethnic group members? For purposes, distribution is concerned with who actually uses or invests (behavior change) in the new opportunities provided as a result of the project. Referring to the previous examples, who utilizes the agricultural loans to increase productivity? How many women make decisions to use the new techniques which the men were exposed to in training? Does the proportion of off-farm jobs held by the minority ethnic group in the subproject area increase over the life of the project? Finally for goals, the distribution

Table 2: Generic Distribution Indicator Matrix For AID Projects

Standardized Logical Framework Vertical Categories	Aggregate or Growth Indicators	Distribution Indicator Dimensions														
		Vertical*	Horizontal**							Vertical/Horizontal* **						
			Sex		Occupation						Sex		Occupation			
			M	F	Agri.	Non-Agri.					M	F	Agri.	Non-Agri.		
Goal: Intended State of Welfare in the Target Population	Income, Nutrition, and Health Status per AID's Poverty Benchmarks															
Purpose: Intended Behavioral Change (Investment) in the Target Group	Description of Behavior Change Attributes															
Output: New Opportunity for Behavioral Change in the Target Area	Description of Products and Services Resulting from Project															

* Measure shares of aggregate benefits accruing to lowest 50% of the population
 ** Measure percentage of shares accruing to horizontal groupings

question is who's state of well-being (measured in terms of AID's poverty benchmarks) is actually increased? Is the income of the landless tenant increasing, or is it accruing to the landholders? Is calorie intake increasing among the families whose male heads received training? Does employment income end up among the majority ethnic grouping in the area?

Given that this approach represents a reasonable way for categorizing distribution in aid projects, what are the practical steps involved in developing distribution indicators for a development project? Is it possible, using these steps, to develop exemplary indicators in AID's major program areas? The major distribution indicator steps and examples developed from applying them are presented below.

There are four steps to follow in developing distribution indicators. They should be universally applicable in all AID projects focused on the poorest majority. They include:

(1) For all vertical divisions of the Logical Framework (outputs, purposes, goals), check to make sure that the narrative statements approximate the standard categories recommended above. That is, the output narrative should identify new opportunities created by good management of project inputs. The purpose narrative should focus on opportunity utilization in behavioral terms. The goal narrative should be concerned with changed states of community well-being ultimately expected from the project.

(2) For all narrative statements, develop aggregate indicators to measure the expected growth of benefits resulting from the project. Assure that the indicators are appropriate by applying the criteria introduced earlier.

(3) Disaggregate each growth indicator along appropriate vertical and/or horizontal distribution dimensions. Use information from the project area to judge which dimensions should be significant. To do this answer the question of who (which group(s) of rural inhabitants) is likely to receive disproportionate benefit--and burden--shares as a result of the project. Check to make sure that ease and cost of verifying the new indicator are acceptable. For clarity in distribution monitoring, add a benefit incidence indicator column to the Logical Framework.²⁶

(4) Develop specific time-phased targets for each distribution indicator.

In concluding this part, the above steps are applied to develop exemplary distribution indicators. Three hypothetical projects, one in each of AID's major program areas, are utilized for this purpose. The types of distribution indicators which might be found in these projects are presented in Tables 3, 4, and 5.

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An example of this is contained in modification #6 of the AID "The Logical Framework: Modifications Based on Experience", Washington, D.C., 1973.

Table 3: A Project Example of the Distribution Indicator Matrix in Food and Nutrition

Standardized Logical Framework Vertical Categories	Aggregate or Growth Indicators	Distribution Indicator Dimensions													
		Vertical*	Horizontal**						Vertical/Horizontal* **						
			Sex		Occupation				Sex		Occupation				
			M	F	Agri.	Non-Agri.			M	F	Agri	Non-Agri.			
Goal: Intended State of Welfare in the Target Population	Total or Percent Increase in Annual Calorie Intake From Growing more Nutritious Crops During Project														
Purpose: Intended Behavioral Change (Investment) in the Target Group	Number or Percent of Farmers in Project Area Growing New High Nutrient Crops														
Output: New Opportunity for Behavioral Change in the Target Area	Quantity and Quality of High Nutrient Field Trials, Starter Packages and Extension Services														

* Measure shares of aggregate benefits accruing to lowest 50% of the population
 ** Measure percentage of shares accruing to horizontal groupings

Table 4: A Project Example of the Distribution Indicator Matrix in Population and Health

Standardized Logical Framework Vertical Categories	Aggregate or Growth Indicators	Distribution Indicator Dimensions													
		Vertical*	Horizontal**						Vertical/Horizontal* **						
			Sex		Occupation				Sex		Occupation				
			M	F	Agri.	Non-Agri.					M	F	Agri.	Non-Agri.	
Goal: Intended State of Welfare in the Target Population	Total or Percent Decrease in Infant Mortality for Children Aged 0-1 from Using Health Services														
Purpose: Intended Behavioral Change (Investment) in the Target Group	Number or Percent Local Inhabitants in Project Area Using Health Services Provided by Project														
Output: New Opportunity for Behavioral Change in the Target Area	Quantity and Quality of Clinics Established Para-professional Trained, and Supplies Available														

* Measure shares of aggregate benefits accruing to lowest 50% of the population
 ** Measure percentage of shares accruing to horizontal groupings

Table 5: A Project Example of the Distribution Indicator Matrix in Education

Standardized Logical Framework Vertical Categories	Aggregate or Growth Indicators	Distribution Indicator Dimensions														
		Vertical*	Horizontal**							Vertical/Horizontal* **						
			Sex		Occupation						Sex		Occupation			
			M	F	Agri.	Non-Agri.					M	F	Agri.	Non-Agri.		
Goal: Intended State of Welfare in the Target Population	Total or Percent Increase in Annual Income From Application Of New Techniques															
Purpose: Intended Behavioral Change (Investment) in the Target Group	Number or Percent of Local Inhabitants Applying New Techniques Learned through the Project															
Output: New Opportunity for Behavioral Change in the Target Area	Types and Number of Skills Learned in Non-formal Education Exposure															

* Measure shares of aggregate benefits accruing to lowest 50% of the population
 ** Measure percentage of shares accruing to horizontal groupings

PART III
ORGANIZATIONAL INFORMATION-MANAGEMENT INDICATORS

INTRODUCTION

This section presents a preliminary array of organizational information-management indicators. Such indicators are vital for project appraisal, design and implementation. They offer a means for identifying alternative organizational arrangements with different potential impacts on the distribution of project benefits.

The presentation format of the information-management indicators parallels the approach of Part II. First, a problem statement is made. It emphasizes the operational need for guidelines for organizing projects in ways which favorably affect benefit distribution. Second, theoretical generalizations are introduced in a manner which allows them to be translated into both information-management and logical framework terms. These generalizations deal with the role of organizational factors in socio-economic distribution in developing countries. And finally, indicators of organizational information-management processes are given. These indicators provide the preliminary foundation of the organizational design guidelines which will be presented in this research project's final report.

When reading this section, one should constantly keep in mind the tentative and exploratory nature of the research. Organizational design methodologies are in their infancy. Implementation analysis and theories of implementation processes are only beginning to be developed. This study is one of the

beginnings. In fact, our work starts where recent essays end.¹

PROBLEM STATEMENT

Project designers and project managers need analytic tools which allow them to appraise and implement project organizational arrangements which are most apt to deliver project benefits to the rural poor.

This need has been recognized by numerous recent studies of development projects. Uma Lele, in her book The Design of Rural Development: Lessons from Africa, articulates it clearly and succinctly. She says,

The major strength of this study lies in its examination of the broad institutional and participatory questions related to rural development rather than in its conventional evaluations of projects.

The methodological tools available for analysis of such institutional and distributional questions are, of course, rather crude--a problem that is compounded by the need for an interdisciplinary approach to such analyses. (p. 12)

Recognition of the limitation of current analytical approaches is also stressed in the DAI report "Strategies for Small Farmer Development: An Empirical Study of Rural Development Projects", where the following statements zero in upon the problem,

If there are special functions that local organizations can perform, planners must assess the local environment to determine which organizational approaches will be most effective in reaching small farmers. (vol. I, p. 154)

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See: R. Ebert and J. Mitchell, Organizational Decision Processes: Concepts and Analysis, New York: Crane, Russak and Co., 1975; Chapter 12, "Issues for Action and Design", pp. 267-286. E. Hargrove, The Missing Link: The Study of Social Policy Implementation, Washington, D.C.: The Urban Institute, 1975. L. Sigelman, "Comparative Administration: A Subject Matter in Search of A Methodology", paper delivered to the 1975 Annual Meeting of the American Political Science Association.

However, it was impossible to trace the dynamics of organizations or to do more than rudimentary analysis of the process by which they played useful roles in project activities...At this time there is no clear way to explain, in terms of a model of development, when and how to initiate new organizations as opposed to working with existing local institutions. (vol. I, p. 496)

In the above statements two elements are apparent. The first is a recognition of the significance of organizational-institutional factors in distributing project benefits to the rural poor. The second is the lack of tools for the analysis of those factors. If organizations do play such an important role, then it may be extremely difficult (if not impossible) to carry out the Congressional mandate without developing tools for analyzing organizational determinants of benefit distribution.

USAID's Project Assistance Handbook explicitly addresses this need. The critical nature of project organization in influencing the distribution of benefits is outlined in the section on Social Soundness Analysis. However, only minimal guidance is provided. A focus upon questions related to the organizational context of projects is included but means for answering those questions are noticeably lacking. This limitation is, of course, related to the above comments on the lack of adequate techniques for the necessary analyses. Thus the Handbook is limited to raising the pertinent questions. It states,

To a considerable degree the organizational context of the project can influence its result...

In sum, no prejudgement is made on whether existing or new organizational units should administer the project. But the importance of this question is considerable as it will entail who gains and who may lose from the project. These considerations will help answer the

following questions from a social perspective:
 What is the basic organizational structure through which the innovation should be channeled? Should a new organization be created or will existing local government or village organizations be sufficient? Note: Whichever choice is made will affect power relationships since resources and responsibilities are involved. Will the organizational structure chosen be likely to enhance the likelihood of a positive spread effect? (p. 5A-3)

Thus, once again, we are confronted with a recognition of the importance of organizational design and then we are left without a systematic design focus. This problem is widespread in both academic and operational circles. In fact, recent attempts to develop means for "Implementation Analysis" are responses to this problem. For example, in an article dealing with what he calls "The Missing Chapter in Conventional Analysis", Graham Allison says,

After the decade of the 1960's, the disappointments of "Great Society" legislation, and the disaster of Vietnam, it is no longer necessary to argue that implementation is a problem--an important piece of any issue of public policy. The slip between ambition and accomplishment, legislation and execution, promise and performance, is plain for all to see...

In spite of wide-spread recognition of the problem of implementation, no study to date has suggested specific ways of coping with these obstacles in the process of implementing public policy decisions. Nor has anyone identified systematic ways of incorporating considerations of implementation in the analysis of choice among alternative programs.²

Allison then goes on to list specific considerations necessary for a minimum analysis of program alternatives and those required for a stronger

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Graham Allison, "Implementation Analysis: The 'Missing Chapter' in Conventional Analysis--A Teaching Exercise"; Richard Zeckhauser, et. al. (eds.), Benefit-Cost and Policy Analysis 1974, Chicago: Aldine, 1975, p. 369.

analysis (his emphasis). Unfortunately, he only advances a few steps beyond the concerns of the Project Assistance Handbook. Among the items needed for a stronger analysis, the following most closely aims at our need,

For major tasks and operations, the likely organizational actors should be identified, and their interests and incentives analyzed (operational goals, SOPs, skills, personnel, career system, autonomy, relations with constituents, etc.). A prediction about the behavior of each should be made, its impact on estimated costs and benefits assessed, and estimates adjusted accordingly. Alternative organizations (and organizational components) that could perform the desired tasks and operations should be identified. Feasible changes in organizational structure or incentives that offer better prospects of performance of operations should be noted.³

Allison's focus, then, is upon organizational factors which will influence the actual implementation of projects. That is, given a policy objective, one must look at not only the substance of projects intending to achieve it--one must also assess the impact of organizations upon the alteration of project focus and effort during the project life-cycle. Once a project is begun, it tends to acquire a life of its own and this life is largely guided by the organizational influences in its environment. This poses a problem for efforts aimed at the rural poor--stronger organizations can co-opt and re-direct the project.

In a publication resulting from a series of Ford Foundation seminars on employment in developing nations, John Woodward Thomas called the co-optation and redirection process "program mutation". That is, the means of implementing

3

Ibid., p. 386.

public works projects may change and those changes may have a profound impact upon the results of those projects--in fact, they may function in a manner quite opposite to the intentions of the original designers. Thomas goes on to say,

There are several important decision points at which pressure for mutation can be applied: the choice of projects, the choice of technology, the choice of project implementation agent, the establishment of wage rates, or the selection of employees. Over some period of time, these pressures may succeed in altering programs since the rural poor usually provide an inadequate political counterforce in defense of their own interests.⁴

If techniques for appraising the critical organizational factors influencing "program mutation" are to be developed, it is necessary to articulate a model of the role of organizations in socio-economic distribution in the developing nations. Such a theoretical statement allows important variables to be specified and guidelines for manipulating those variables to be developed. The next part of this section presents a theoretical perspective and the third part offers indicators of critical information-processing variables. They are the basis for our study of the role of project organization in distribution and the subsequent project design guidelines.

This section of this report thus addresses the need for a theory of organization design which gives meaning to the data available and allows the development of "less crude" analytical techniques which can be used by project managers to design or select organizational arrangements which assist in achieving the distributive goal of rural development projects.

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John Woodward Thomas, "Employment Creating Public Works Programs: Observations of Political and Social Dimensions", Edgar Edwards (ed.), Employment in Developing Nations, New York: Columbia University Press, 1974, p. 305.

GENERALIZATION: ORGANIZATIONS IN SOCIO-ECONOMIC DISTRIBUTION

Organizations may be viewed in many different ways. If our viewpoint is to be practical, given our aim of affecting project benefit distribution, we must approach organizations in a way which both reveals distributive dynamics and allows the design and management of those dynamics.

We have chosen an information system management perspective. There are four reasons for this choice. First, an information processing perspective has been identified as significant in the emerging literature of organization design.⁵ Its "functional" and "process" nature is drawn from General Systems Theory (GST).⁶ This allows both an interdisciplinary approach to distribution dynamics and the deduction of contextually specific forms which reflect general

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Herbert Simon has written:

The major problems of governmental...organization today are not problems of departmentalization and coordination of operating units. Instead they are problems of organizing information storage and information processing--not problems of the division of labor but problems of the factorization of decision making. These organizational problems are best attacked, at least to a first approximation, by examining the information system in abstraction from agency and department structure.

See: H. Simon, "Applying Information Technology to Organization Design", Public Administration Review, vol. 33, #3, May/June 1973, p. 276.

6

See, for example: Chapter 4 of G. David Garson, Handbook of Political Science Methods, Boston: Holbrook Press, 1971.

functional relationships. This minimizes the hazards of cross-cultural research while simultaneously focusing upon goal-relevant (distribution-related) interactions.⁷ Second, recent approaches to the rural development process emphasize the role of a "training-knowledge-communications system" and the need to design information systems for project management.⁸ Thus an information perspective of organizations can be directly translated into management technologies significant for rural development. Third, a general systems perspective, and its information element, can be directly related to the logic and approach of USAID's Logical Framework for Project Design. This will be developed later. Fourth, discussions of distribution are politically

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That is, does a specific formal information-processing arrangement restrict or distribute information? Everett Rogers has reduced innovations to FORM (directly observable substance), FUNCTION (contribution to the lifestyle of social system members), and MEANING (perception by members of the social system). An information-processing approach to organization design for influencing project benefit distribution can thus be seen as focusing on FUNCTION. The theory gives MEANING to the FORMS in terms of their FUNCTIONAL impact on distribution.

See: Everett Rogers and Floyd Shoemaker, Communication of Innovations: A Cross-Cultural Approach, second edition, New York: Free Press, 1971, p. 337.

8

See: E. Owens and R. Shaw, Development Reconsidered: Bridging the Gap between Government and People, Lexington, Mass.: D.C. Heath, 1972, pp. 126-132; Development Alternatives, Inc., "Information Systems to Support Rural Development Projects", February, 1976; Raymond Radewovich, "Control and Evaluation Processes for Project Management" and "Designing a Project Information System", Graduate School of Management, Vanderbilt University, n.d.

and emotionally charged. Since the division of wealth is at stake, the introduction of "rationality" is difficult at best. An information perspective may be capable of both highlighting significant dynamics and presenting them in a technical format which moderates the discussion. Thus, the probability is raised of executing an analysis of the organizational factors relevant to project design and implementing the conclusions of that analysis.

ORGANIZATIONS AND DISTRIBUTION: A FIRST APPROXIMATION

An organization is a system of interacting people and roles.⁹ Through time, a pattern of the type and degree of interactions is observable. Interactions may be both formal (i.e. authorized) and informal (i.e. not included within the formal authority structure). An aspect of all interactions is the transmission of information- Formal and informal interaction patterns limit the flow of information. Thus, they are important in determining who does and who does not know about certain opportunities or events. By excluding some actors from information, the range of responses available to those with information is also influenced.

An authority structure, then, can be seen as a formal attempt to influence the distribution of information within an organization. This provides certain

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"The writer understands the term organization to denote, in its broadest sense, any group of persons plus the system of roles defining their interactions with one another." See: S. Udy, Jr., "The Comparative Analysis of Organizations"; J. March (ed.), Handbook of Organizations, Chicago: Rand-McNally, 1965, p. 678.

elements an advantage in the control of the organization's resources. Thus, an organization may be seen as a mechanism which distributes socio-economic resources within a given boundary.

Organizations have multiple goals. Although there is an overlap, different elements within an organization may have both different goals and different perceptions of the same stated goals. Thus, the way information about opportunities or problems is distributed throughout an organization influences which sets of goals are most apt to be pursued throughout an organization.

Additionally, organizations are not closed systems. They interact with other organizations and with individual elements and forces in the environment. Much of this interaction focuses upon resources needed for survival or goal achievement.¹⁰ Some of the required resources must be found outside the organizational boundary. Other resources may be internal. Acquisition of external resources and information can be seen as growth from the organization's perspective. From the same perspective, the internal allocation of those resources and information may be viewed as distribution. (Although any one internal unit could view its share of the new resources as contributing to its own growth.)

The data which is used in decision-making is called information. Decisions may relate to survival and/or goal-achievement. Information is used to reduce uncertainty in one of these areas. The transformation of data into information is an important process which is dependent upon a few important factors. One

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An institution is an organization whose members were not present at the inception of the organization and thus their perception of organizational goals differs significantly from the original intention of the founders. The primary concern of an institution is self-conscious survival.

of these is the information need of the task. Another is the "filter" of the data receiver. A third is the capacity of the receiver (in relation to the data transmitter as well as absolutely). Data is transmitted both horizontally and vertically within an organization. Its transformation into information at any point, however, is related to the three factors listed above. Given a set of data, an auditor, a project evaluation officer, a project manager, a technician or a contractor might extract very different conclusions and recommendations. They would thus transmit different signals to various subunits of the same agency. Those signals would also encounter different degrees of resistance at various points. The more the signals match the information needs of different points, the greater the tendency to consider them information rather than data and the greater the influence on achieving the goals of the transmission unit.

The organizational system also collects data from its environment. The environment can be separated into two types--proximal and distal. The proximal environment is that closest to the organization. Direct interactions occur between the organization and actors in this immediate environment. Thus, the organization attempts to directly influence the behavior of actors in the proximal environment. The distal environment is further away in terms of the organization's resources. It has little chance of directly and unilaterally influencing this greater environment. Nevertheless, it may be monitored in order to see changes of state which affect the proximal environment.

Access to information by and within organizations affects the ability to survive or achieve other goals.¹¹ Given competition between organizations and

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See: N. Caiden and A Wildavsky, Planning and Budgeting in Poor Countries, New York: Wiley-Interscience, 1974.

the organization's relative resources, membership and position in an organization largely determine an individual's ability to survive or achieve. Thus, one may hypothesize that an examination of: (1) the relative resources controlled by different organizations; (2) how each organization processes information; (3) who belongs to which organizations; and (4) where they are in the information-processing structures, would reveal much about the role of organizations in socio-economic distribution in a given area.¹²

But this is not enough. A present state of affairs does not reveal either how it came about or how innovations would be received. An ahistorical approach is inadequate when analyzing social dynamics.

12

Systems, information and organization theory literature pertinent to this discussion include:

- R. Ackoff and F. Emery, On Purposeful Systems, Chicago: Aldine-Atherton, 1972.
- J. Carroll, "Noetic Authority", Public Administration Review, vol. 29, 45, 1969.
- J. Carroll and N. Henry, Symposium Editors, "Symposium on Knowledge Management", Public Administration Review, vol. 35, #6, 1975.
- I. Hoos, "Information Systems and Public Planning", Management Science, vol. 17, 1971.
- N. Lin, "Information Flow, Influence Flow and the Decision Making Process", Journalism Quarterly, vol. 4, 1971.
- B. Whittemore and M. Yovits, "A Generalized Conceptual Development for Analysis and Flow of Information", Journal of the American Society for Information Science, vol. 24, 1973.
- A. Kuhn, The Logic of Social Systems, San Francisco: Jossey-Bass, 1974.
- J. Steinbruner, The Cybernetic Theory of Decision, Princeton: Princeton University Press, 1974.
- D. Silverman, The Theory of Organizations, New York: Basic Books, 1970.

ORGANIZATIONS AND DEVELOPMENT: AN HISTORICAL SCENARIO

At the time of initial colonial penetration into an "undeveloped" area, wealth, power and status in different areas ranged from highly concentrated in some to highly dispersed in others. Additionally, some areas had customary behavior patterns which reinforced concentration, whereas others tended to redistribute throughout time. For example, certain caste systems, landholding arrangements, and sex roles tended to reinforce the position of certain lineages, while other "bride-price" customs, communal responsibilities, age-grade systems and social values tended to disperse such concentrations through time.

With the introduction of colonial administration a new avenue to power and wealth was introduced--a colonial monetary economy and colonial style education. Language, literacy and labor were saleable items. If the colonial regimes were to establish a modicum of control over territorial areas, they needed allies among the indigenous people. The colonial powers controlled technological resources whose scale far exceeded those available to local people, but in order to deploy them in the least risky and most profitable way it was necessary to co-opt some of the indigenous people.

12 continued

J. Thompson, Organizations in Action, New York: McGraw-Hill, 1967.

J. March and H. Simon, Organizations, New York: Wiley, 1958.

W. Fleming, "Authority, Efficiency and Role Status: Problems in the Development of East African Bureaucracies", Administrative Science Quarterly, vol. 11, 1966.

M. Landau, "Linkage, Coding and Intermediacy: A Strategy for Institution Building", J. Eaton (ed.), Institution Building and Development, Beverly Hills, Calif.: Sage, 1972.

V. Thompson, Organizations as Systems, Morrisville, N.J.: General Learning Press, 1973.

Sometimes this involved choosing a prince or chieftain and backing him in his conflicts with other traditional rulers. It usually included the establishment of salaried positions within the colonial administration. Sometimes it involved using "marginal" people as mediators or go-betweens ("brokers"). Such use may have been based on an opportune location, an entrepreneurial drive, linguistic skill, ethnic preference or numerous other factors. However, this created a vested interest on the part of those so favored to exclude other locals from direct access to the riches provided by colonialism. In fact, their position often was maintained only by the selected exclusion of others.

Different societies and social groups reacted differently to this monopolizing tendency. There were those who accepted its legitimacy because it reinforced traditional institutions and disparities. There were others who accepted it because they did not expect their descendents to be excluded from new opportunities. Others promoted it because they were in the monopolizing position.

However, others opposed it. Those who saw themselves and their lineages as losers tried to limit or break the hold of the privileged. This sometimes took the form of attempts to emphasize customary rules which dispersed wealth; violence against either the elite, the colonial regime or both; or attempts to create alternative resources. Each response required organized action of the "outs" against the "ins" and promoted organized reactions among the latter.

In any event, the selected and limited introduction of new technologies tended to either create a new concentration of wealth or freeze an existing imbalance. It interfered with distributive dynamics.

The positions of the new elite "brokers" within traditional organizations created access routes to the new powers. Those with access to information through organizational channels obtained opportunities denied to those without access. Thus, age-grades, secret societies, kinship groups and other information-sharing institutions became filters which limited wealth distribution. Non-traditional organizations also assumed that role. "Old boy" networks established at missionary schools, teacher training colleges and in bureaucracies became wealth-linked associations for new generations.

As these new organizational forms increased in importance, changes occurred in traditional institutions. Some traditional forms had difficulty mobilizing psychic or political resources. Others, because of their links to new wealth sources increased in power. Others formed xenophobic reactionary pockets of past values.

Independence movements utilized this amalgam of new and old organized relationships. New loyalties were forged as local leaders supplanted colonial leaders in wealth-giving positions. This was a further historical information-sharing dynamic which altered the relative position of different organizations. Now the nature of the interaction with the victorious political party further modified the relative positions of organizations. Seldom did one set of relationships totally supplant another. The effect was often an addition rather than a substitution.

The creation of urban centers also influenced the creation of new organization forms and the power balance of traditional-exogenous organizations. Many of the organizational units which maintained central government influence in outlying rural areas did not represent the interests of the rural poor.

A new element intruded into this environment--the development project. Once the project was designed and began operating, it became a new resource source

and was drawn into the organizational dynamics described above. That is, since the project was part of the proximal environment or organizations claiming rural poor membership, the organizations influenced project operation and guided the direction of the "program mutation" process. The role of projects in distributing benefits can be depicted as partially a function of its interaction with the above set of organizational dynamics. Additionally, these dynamics varied in different places with different organizational histories and institutional forms.

The "mutation" process can be seen as a transfer of "system ownership" from the original project designers to other forces. Projects tend to become absorbed into local values, social relationships and processes. The "fit" between the project and its environment is important in determining which forces will engulf it the most and how they will do it. Thus, theoretically, the organizational decision process of a project will favor linkages between some local organizations rather than others. The function of the other organizations in socio-economic distribution will then guide the direction of mutation in terms of "who gets the benefits".¹³

13

This scenario is commonly supported in the development literature, although "organizations" per se are not stressed. A few relevant citations are:

F.G. Baily, Stratagems and Spoils, Oxford: Basil Blackwell, 1969.

D. Goulet, The Cruel Choice, New York: Antheneum, 1971.

P. Lloyd, Classes, Crises and Coups: Themes in the Sociology of Developing Nations, London: McGibbon and Kee, 1972.

C. Leys (ed.), Politics and Change in Developing Countries, London: Cambridge University Press, 1969.

J. VanKekken and H. VanVelzen, Land Scarcity and Rural Inequality in Tanzania, The Hague: Mouton, 1972.

SYSTEMS MANAGEMENT AND ORGANIZATION DYNAMICS: TOWARD APPLICATION

The previous scenario outlined a perspective toward the role of organizations in affecting the distributive impact of projects in developing countries. But this generalized outline must be made more specific if management technologies are to be used to: (1) appraise significant attributes of the organizational situation in specific localities, (2) design project organizational arrangements which improve the "fit" between the project and its goal and environment and (3) then implement the project. A systems management approach may help operationalize an organization design technique to improve rural equality.

Projects can be viewed as systems. That is, resource INPUTS are transformed (THRUPUTS) into a product or service (OUTPUT) which provides an opportunity for actors in the proximal environment. If the output produces an impact in the proximal environment, a behavioral change will occur there because of an investment in the opportunity provided by the output (This is true of organizations promoting social change like development projects. The output of some organizations, however, is aimed at maintaining ongoing behavior patterns.). Such behavioral change, in turn, may contribute to altered conditions in the distal environment of the project.

13 continued

J. Proctor (ed.), Building Ujamaa Villages in Tanzania, Dar Es Salaam: Tanzania Publishing House, 1971.

H.D. Seibel and A. Massing, Traditional Organizations and Economic Development: Studies of Indegenous Cooperatives in Liberia, New York: Praeger, 1974.

D. Lehmann (ed.), Peasants, Landlords and Governments: Agrarian Reform in the Third World, New York: Holmes and Meier, 1974.

The implementation process is the transformation of INPUT into OUTPUT. An external viewer may treat this transformation as a "black box". In this case, how input is converted into output is insignificant. Only the ratio between the two ("efficiency", "production function") is deemed important. To the project manager, however, the conversion process itself is the source of his troubles. He must produce the output. For the manager, the "black box" approach is useless.

The limitation of the black box view may be illustrated by contrasting an example of its logic with an example of its inadequacy in social systems. The assumption that "all input-output processes which produce equal outputs are instrumentally equal" is the functional logic of a computer program. The program requires a certain output from sub-routines (e.g., a mean score). The way the outputs are created (the order of addition, the method of division, the use of Arabic numbers or Japanese characters or an abacus, etc.) is of no concern as long as they are accurate. No judgment is placed on the intrinsic value of alternative processes.¹⁴ However, in human societies this view is not adequate. The path is often as important as the destination. Anyone familiar with organizations or bureaucracies knows that how you do something often determines what results. Channels, processes, styles count. Management makes a difference.

13 continued

R. Rogowski, Rational Legitimacy: A Theory of Political Support, Princeton: Princeton University Press, 1974.

J. Migdal, Peasants, Politics and Revolution, Princeton: Princeton University Press, 1974.

14

See: H. Simon, "The Organization of Complex Systems"; H. Pattee (ed.) Hierarchy Theory: The Challenge of Complex Systems, New York: Braziller, 1973.

If this is so, then information about legitimate and accepted practices can be crucial for project success. The way the project management interfaces with environmental groups and exchanges information with them may be an important determinant of the project's ability to survive.

Let us briefly examine an example. American agriculturalists combined numerous inputs of land, labor, technology, etc. to produce a product--grapes. The difference in grape quality between various producers was not discernable. Nevertheless, those of certain producers were seen as desirable and purchased, whereas the produce of other farmers induced no such behavior. If the black eagle stamp of the United Farm Workers was not present, the environment rejected the legitimacy of the input-output process and the intended project impact was not achieved. However, management did not acquiesce to this set of environmental constraints. An information-sharing interface was established with another organized environmental element which held different values. The U.S. Department of Defense increased grape purchases to absorb the unsellable surplus of non-union grapes.¹⁵

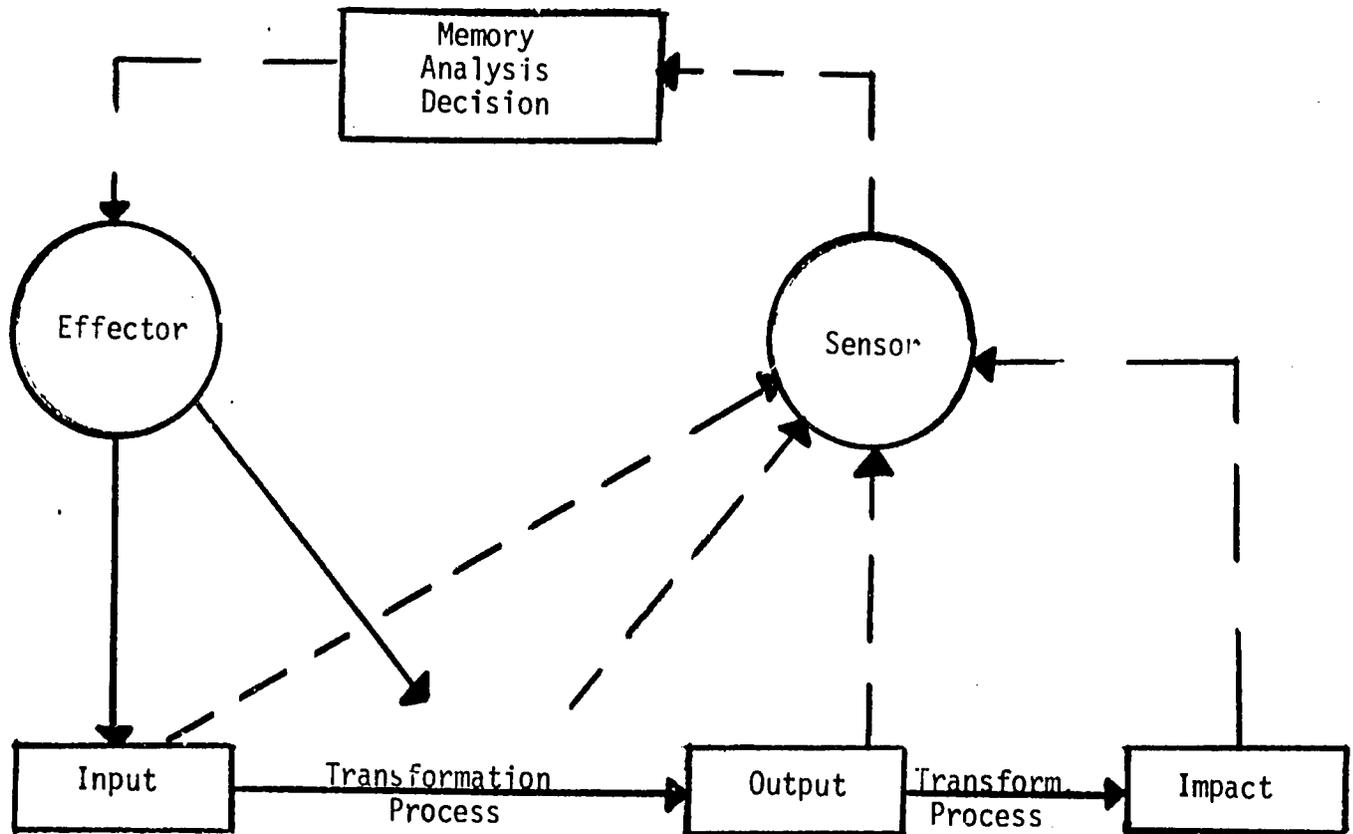
The above example articulates the need for project information systems to monitor environmental value data, but there is also another element which must be obtained contextually. That is historical data, or, in information terms, memory. Certain forms or processes may not only be seen as legitimate or illegitimate. There may also be historical associations which are attached to them. In such a case, the behavior which accompanies certain policies,

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See: L. Gawthrop, Administrative Politics and Social Change, New York: St. Martins Press, 1971.

processes or symbols may be quite divergent from that intended by a manager. If project operations are to proceed according to plans, historical knowledge of the situation is necessary.¹⁶

The value and memory factors can be related to system interactions. For example, the management systems perspective is based on the following construct:



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S. Sarason, The Creation of Settings and the Future Societies, (San Francisco: Jossey-Bass, 1972) emphasizes the role of memory in project implementation. Value and memory are also integral aspects of the information systems perspective. See: G. David Garson, Handbook of Political Science Methods, Boston: Holbrook Press, 1971, p. 51. Memory of inconsistent colonial experiences is also depicted as a critical factor in development. See: J.G. Liebenow, Political Development in Tanzania: The Case of the Makonde, Evanston: Northwestern University Press, 1971.

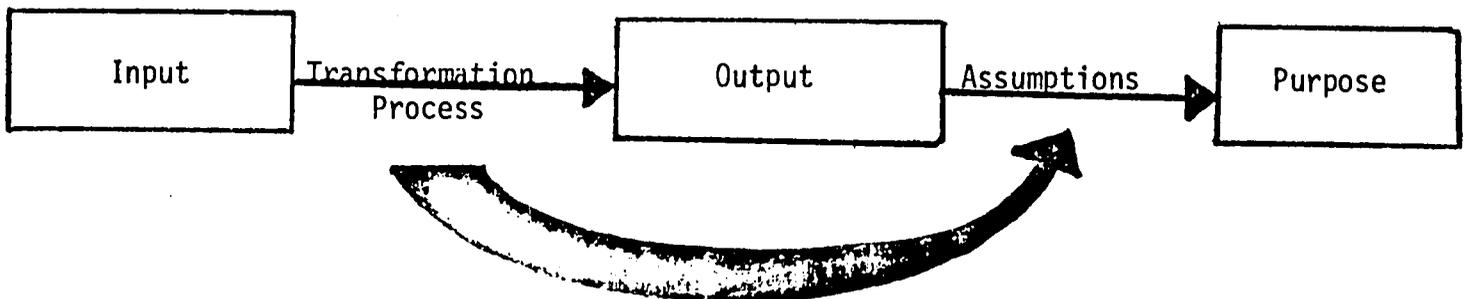
In this construct, dotted lines refer to information flow and solid lines refer to action. Additionally, since we must make some assumptions in order to logically produce output from input and impact from output, and the three levels are theoretically independent, the progression might be depicted as follows:

Input + Assumptions = Output

Output + Assumptions = Impact (proximal environment or purpose level)

Purpose + Assumptions = Goal (distal environment)

However, our previous discussion indicates there may be another critical relationship which explains "How management makes a difference". That is, the input-output transformation process itself influences the validity of the assumptions necessary for output to contribute to purpose achievement. Another way of saying it is "since the project is an open system, the organization and management of the project will partially determine its possibility of success". It may be shown as follows:



An example might help clarify the logic. Let us imagine two different approaches to farmer training using the same input and producing the same magnitude of output. Facilities, materials and people are combined in both cases to produce X number of classroom hours. (students multiplied by hours) The first approach is theoretical, academic and lecture. The second is practical and demonstration-oriented. A critical assumption necessary for the farmers to actually use the techniques is that the farmers understand how to do it. This is an output-purpose assumption. If the assumption does not hold, the linkage will not occur. In the example, the teaching process used in the second program may have facilitated purpose achievement whereas the first one did not. Consequently, although input and output monitoring showed identical achievement, purpose attainment was not consistent, or the project system's impact on its proximal environment varied with its own internal transformation process.

This discussion can be directly applied to the three parameters of project management--time, cost and performance¹⁷--and to the role of project organizational information processing arrangements in distributing benefits. Time and Cost are maximum constraints on the input-output transformation process. They should not be exceeded. Numerous techniques exist to operate within these constraints. Critical Path Analysis, PERT, organizational

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TIME is completion within the schedule; COST is completion within the budget; PERFORMANCE is the completed project's ability to do what is required of it (e.g., an all-weather feeder road must be correctly located and must be able to handle a certain traffic throughout the year).

responsibility charting, situational management, etc. come to mind. Performance, however, is an impact measure. It is a minimum constraint linking output to higher levels of the Logical Framework. It should be met or surpassed.

Performance is an assumption which is required for output to lead to purpose. It points to effectiveness rather than efficiency. A concern for distribution is also a concern for effectiveness or performance. But we have previously shown that because a project is an open system, the input-output management process (not the ratio!) can influence effectiveness at the purpose level.¹⁸

The management process influences linkage assumptions necessary for purpose achievement. Given the previous discussion of organizations as information-distribution mechanisms and the role of organizations in the development administration context, one can hypothesize that different project organizational arrangements will process information differently and will have differential impacts on benefit distribution by influencing output-purpose linkage assumptions critical for reaching the rural poor. Thus, how project organizational arrangements are designed to interface with environmental organizations may influence how much the "program mutation" process diverts project benefits from the rural poor.

The discussion above suggests that if USAID intends to fully implement the Foreign Assistance Act of 1973 and focus upon project benefit distribution and the rural poor, then the design of project management information systems

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Although Critical Path Analysis and other techniques may improve the ratio, how they are applied may influence purpose level behavior. See: G. Honalde, "Critical Path Politics: A Communication Technique for Development Managers", Syracuse: Maxwell Training and Development Program, 1975.

should be based upon (1) project technical task requirements, (2) an appraisal of local organizational information management processes, and (3) project-environmental information-sharing interfaces that facilitate a "program mutation" process which must support the project focus on the rural poor. How information is shared may influence how benefits are distributed. Thus, the organization and management of the project and the design of the project management information system may affect distributive impact.

Therefore, when distributive performance criteria are introduced into an applied systems approach to project design, indicators of ongoing organizational information management dynamics are required.¹⁹ Such indicators allow management to focus upon processes affecting impact. However, if this focus is to be incorporated into project design, it must be adaptable to operational programming techniques. USAID's system design technique--the Logical Framework--and the place of organizational indicators within it, is discussed below.

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Applied information management literature relevant to this discussion includes:

L. Bass, Management by Task Forces, Mt. Airy, Md.: Lomond Books, 1975.

J. Emery, Organizational Planning and Control Systems, New York: MacMillan, 1969.

R. Hopeman, Systems Analysis and Operations Management, Columbus, Ohio: Charles Merrill, 1969.

R. Mockler, Information Systems for Management, Columbus, Ohio: Charles Merrill, 1974.

R. Swinth, Organizational Systems for Management, Columbus, Ohio: Grid, Inc., 1974.

THE LOGICAL FRAMEWORK SYSTEM AND INDICATORS

USAID's Logical Framework for Project Design can be depicted as an applied systems technique. To demonstrate its role in clarifying the organizational impact on project benefit distribution, let us do the following: (1) outline the idea of "system"; (2) show the system dimensions of the Logical Framework; (3) add the implications of: (a) the above discussion of organization information management and (b) the Part II discussion of distribution indicators to the Logical Framework application to project design. This should help tie theoretical abstractions to USAID's programming tools.

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What is a system? A system is a number of discrete elements working together to achieve a goal. There is also a boundary which separates the system from its environment. Within the system boundary, the elements have characteristics or attributes which are significant indicators of their condition. Additionally, the elements are connected by various interrelationships. The identification of each of these components occurs in the mind of the beholder. The system's goal is imposed by the observer, or "owner", and the other characteristics are determined by the requirements of that goal.

Let us use an automobile's ignition system as an illustration of a system. It ignites the gasoline which, in turn, explodes and drives the pistons which propel the car. The goal of the ignition system, however, is

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Although there is some overlap between this discussion and Part II, there are differences in scope and intent. Part II deals with systems hierarchy and systems levels as a useful approach to disaggregating data to develop distribution indicators at different levels. The purpose in this section, however, is to show the relationship between the Logical Framework as a systems technique and the preceding generalizations about project management and the distributive role of organizations. A review of "systems" is thus timely and has been retained.

merely to provide an adequate spark to the cylinders in the right order at the right time. The elements of the ignition system can be seen as points, plugs, distributor, wiring, etc. Attributes of the various elements may include such characteristics as size, conductor/non-conductor, resistance, etc. The interrelationship between the elements could be indicated by a wiring diagram, order of firing for the cylinders, gap setting for the points, etc. The environment of the ignition system would include other systems (steering, exhaust, fuel, etc.) but only the elements, with their attributes and the relationships between them would fall within the boundary of the ignition system.

If we were to redefine the system goal to "turning the wheels of the car", the system would also be redefined. If the car became the total system, then the ignition system would be one of its elements or subsystems. Thus systems have a hierarchical nature. The analytic construct called "system" can be applied to different levels of a phenomenon. Different amounts of transformation occur at different levels, and complexity and uncertainty increase as scale is raised. What appears as structural change at one level appears as process at a higher level. Exploding gas is a structural change resulting from fuel and ignition system output combinations, but to the car's "total system" it is merely part of the operating process.

Given this discussion of systems, let us examine the Logical Framework for Project Design as a systems technique.

The elements are Input, Output, Purpose, Goal. The relationship between them is a hypothesis of linear causality. The different elements are discrete since assumptions are necessary for the desired interrelationship to exist. (If they were not, the Logical Framework would be a tautology, i.e. achievement of output would automatically produce purpose achievement and one level would

be "necessary and sufficient" to create the next.) Indicators are included to allow one to check the attributes of the elements. The assumptions highlight external environmental factors which can alter the relationships between system elements. This is the Logical Framework Total System.

From the project's perspective, however, the purpose and goal levels constitute the proximal and distal environments of the system. The system boundary is based on the owner's ability to control relationships. The project boundary is thus the line between output and purpose on the Logical Framework Matrix.

But we have seen that the input-output transformation process can influence the strength of the assumptions necessary for output to be converted into purpose achievement. Values and memory intervene.

What are the implications of this perspective for organizational information management and distribution indicators? They are the following:

(1) Indicators of distribution are attributes of the purpose and goal levels. They redefine the system elements of the Logical Framework in disaggregated impact terms.

(2) Indicators of organizational information management processes are attributes of assumptions necessary for the transformation processes to occur in a manner which distributes benefits to the rural poor.

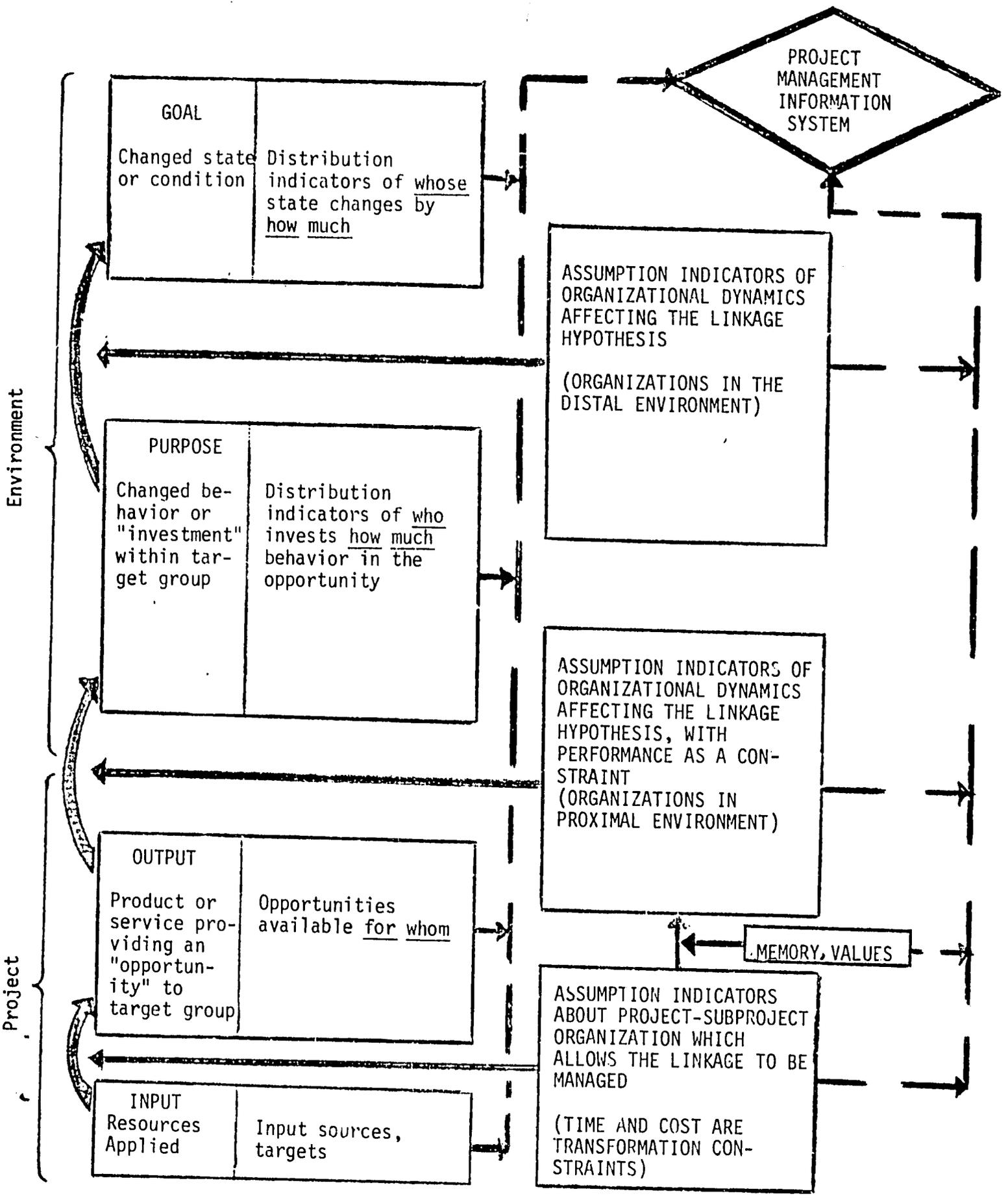
(3) Since each level of the Logical Framework may be depicted as a dependent variable, with the level below it an independent variable and the assumptions intervening variables, we can depict information management indicators as attributes of organizational distribution processes which intervene between Logical Framework Levels and influence the assumptions necessary for the linkage between the next higher levels.

(4) Operationally, then, the information management focus is incorporated into the Logical Framework in the "Assumptions" column. A project management information system, then, must focus not only on the input-output-purpose levels (this is the PPTN approach), but it must also monitor assumption indicators.

These implications for the Logical Framework might be depicted in Figure 6. From the diagram it would seem that if a project management information system is to be designed for projects intending to distribute benefits to the rural poor, it may be necessary for it to monitor environmental organizational dynamics in order to detect "program mutation" which deviates from a distributive goal. Additionally, project design guidelines would concentrate upon the selection of input-output organizational arrangements which positively influence distribution at the purpose level. Also, organizational factors which intervene between purpose and goal to counteract distribution would be identified.

For example, if a cooperative society were dominated by a certain ethnic group, the distribution of those receiving credit might be skewed in favor of that group. Those involved in interpreting credit rules or establishing payment procedures would have an advantage in channeling information about opportunities. This would influence who invested in those opportunities. This could influence purpose level distribution. However, goal level distribution might not be affected because of differential marketing procedures. Other cooperatives may have negotiated more favorable terms with a national marketing board. Competition between ministries (transportation and agriculture?) could also intervene and influence distribution. Thus information sharing among decision makers would take different forms at different levels, but its function related to distribution might be identical.

FIGURE 6: MANAGEMENT INFORMATION SYSTEM IMPLICATIONS OF THE LOGICAL FRAMEWORK



Logical Connections = →

Information Flows = →

Part II of this report showed how to develop project-specific distribution indicators for different Logical Framework levels. The remaining task of this part is to do the same for indicators of assumptions about organizational information processing.

APPLICATION: ORGANIZATION INFORMATION MANAGEMENT INDICATORS

What is an indicator? This question has been addressed in Part II but, considering the very exploratory nature of this section it might be useful to restate the surrogate nature of indicators.

An indicator is a substitute for a phenomenon. As such its presence or absence or degree can be ascertained, whereas measuring the actual phenomenon is difficult. For example, how can one observe the heat (molecular motion?) present in the atmosphere? Rather than attempting to do so directly, we use a substitute--the height of a column of mercury in a thermometer. In this case, the indicator is the column of mercury. The indicator is the choice of measure. The height of the column gauges the condition of the indicator. In presenting indicators, then, we are not stipulating normal or desirable temperature. Rather we are suggesting how to monitor heat to ascertain its condition in measurable terms. The same is true of information management indicators.

There is another requirement for an indicator. It should be logically linked to its intended phenomenon. Theory or observation may be used to do this. Using a deductive approach requires extraction of indicators from theoretical generalizations. This report uses such an approach. We are attempting to devise indicators of organizational information management because direct measurement of information processing is too costly.

Our view is focused by the previous discussion and by three publications dealing with organizational decision-making.²¹ These volumes approach organizational dynamics by viewing decision-making and information processing during crises. Galbraith proposes a four-strategy typology of information management. Two strategies increase information, while two distribute information. These strategies are depicted in Table 6.

This typology is based upon numerous case studies of organizations. Most of the organizational decision processes reviewed fall into the "functional" category. In fact, without a conscious effort to deal with information-processing procedures as a variable to be manipulated, few organizations opted for any of the other three strategies. In the face of environmental changes, then, functional information-processing can be equated with redesign by default, whereas the other three strategies are more activist in orientation.

The purpose of the typology is to link organizational forms to strategies for reducing uncertainty. If the different strategies have different implications for information distribution within the organization and if organizational information distribution affects socio-economic distribution, then the ability to predict which organizations are apt to use which strategies in dealing with new projects allows an observer to anticipate which organizations are likely to reinforce positive or negative program mutation. Thus we have interpreted Galbraith's typology to allow us to infer information-processing dynamics from a review of organizational operations. These dynamics can, in turn, be hypothetically related to project benefit distribution.

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J. Galbraith, Designing Complex Organizations, Reading, Mass.: Addison-Wesley, 1973; R. Ebert and T. Mitchell, Organizational Decision Processes: Concepts and Analysis, New York: Crane and Co., 1975; R. Swinth, Organizational Systems for Management, Columbus, Ohio: Grid, Inc., 1974.

TABLE 6: TYPOLOGY OF ORGANIZATIONAL RELATIONSHIPS AND INFORMATION MANAGEMENT*

INFORMATION SHARING WITHIN A SYSTEM LEVEL

		Low Distribution Of Information	High Distribution Of Information
INFORMATION SHARING <u>BETWEEN</u> SYSTEM LEVELS	High Growth Of Information	HIERARCHICAL	MATRIX
	Low Growth Of Information	FUNCTIONAL	TACTICAL

*This is Galbraith's typology using terms more similar to Ebert and Mitchell, and Swinth's analyses. In Galbraith's terms, Hierarchical=Vertical Information System; Functional=Slack Resources; Matrix=Lateral Relations; Tactical=Self-Contained Tasks. The axes of the chart can also be related to non-information terms. Thus High Distribution=High Participation, whereas Low Growth=High Autonomy.

The typology allows a focus on organizational structure and standard operating procedures as information filters which influence distribution.

See: J. Galbraith, Designing Complex Organizations, Reading, Mass.: Addison-Wesley, 1973; J. Steinbruner, The Cybernetic Theory of Decision, Princeton: Princeton University Press, 1974; R. Ebert and T. Mitchell, Organizational Decision Processes: Concepts and Analysis, New York: Crane and Co., 1975; R. Swinth, Organizational Systems for Management, Columbus, Ohio: Grid, Inc., 1974.

Ebert and Mitchell, and Swinth go on to delineate some of the organizational relationships and responsibilities related to the four strategies. The responsibilities are outlined in Table 7. From this articulation of mixtures of organizational responsibilities we can extract generalizations about information-processing based upon those responsibilities. These generalizations are presented in Table 8.

These tables provide a transition from the information-processing typology to our indicators of organizational information-management. The indicators must address not only the growth and distribution dimensions of information-management--they must also relate to our objective of reaching the rural poor. Thus, the distribution dimension of information-management must focus upon who has access. The indicators should represent the probability that the rural poor will obtain information about opportunities in a manner consistent with their values and memory.

Thus, we have used organization theory as a filter to limit our focus and provide us with a typology of processes which we can use in developing a theory of intervention to influence distribution. Such an intervention theory will allow us to formulate action guidelines for project design using indicators of information-management.

For now, however, we must beware of overloading our own capacity to process information. We do not need complexity in excess of our own problem. If we are to practice "optimal ignorance"²², we must remember that our research focuses only upon one dimension of the information-processing role--distribution.

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This term is used by Norman Uphoff. See: N. Uphoff and W. Ilchman, The Political Economy of Development, Berkeley: University of California Press, 1973.

TABLE 7: THE INTERRELATIONSHIP BETWEEN ORGANIZATIONAL
STRUCTURE AND RESPONSIBILITIES

<u>HIERARCHICAL RESPONSIBILITY</u>	<u>MATRIX RESPONSIBILITY</u>
<ol style="list-style-type: none"> 1. Executive Focus on Purpose-Goal 2. Management Focus on Input-Output 3. Single Supervisor 4. Staff/Line Dichotomy 5. Management within Functional Lines 	<ol style="list-style-type: none"> 1. Executive Focus on Goal 2. Management Focus on Purpose 3. Multiple Funding, Responsibility, Supervisors 4. Mixed Staff/Line Responsibility 5. Management across Functional Lines to Purpose
<u>FUNCTIONAL RESPONSIBILITY</u>	<u>TACTICAL RESPONSIBILITY</u>
<ol style="list-style-type: none"> 1. Executive Focus on Output-Purpose 2. Management Focus on Input 3. Single Supervisor 4. Staff/Line Dichotomy 5. Management within Functional Lines 	<ol style="list-style-type: none"> 1. Executive Focus on Purpose 2. Management Focus on Output (MBO) 3. Multiple Responsibility, Supervisors; Single Unit Funding 4. Mixed Staff Line Responsibility 5. Management across Functional Lines to Output

TABLE 8: INFORMATION-PROCESSING GENERALIZATIONS

HIERARCHICAL INFORMATION-PROCESSING

1. Information Categories Set by Leaders who Respond to External Influences
2. Rigid Role and Status Differentiation Based on Skills
3. Quick to Adopt New Technology
4. High Communication between Levels (Constant Dictation)
5. Low Communication within Levels (Sharing)
6. Responds to Uncertainty by Collecting Maximum Data at All Levels Sending up Hierarchy

MATRIX INFORMATION-PROCESSING

1. Information Categories Set by Task Needs and External Influences
2. Flexible Roles, Status Differentiation Based on Technical Skills
3. Quick to Adopt New Technology
4. High Communication between Levels (Constant Negotiation)
5. High Communication within Levels (Sharing)
6. Responds to Uncertainty by High External Interaction, Data Collection at All Levels

FUNCTIONAL INFORMATION-PROCESSING

1. Information Categories Set by Leaders who Respond to Peers
2. Rigid Role and Status Differentiation Based on Position
3. Slow to Adopt New Technology
4. Low Communication between Levels (Periodic Dictation)
5. Low Communication within Levels (Sharing)
6. Responds to Uncertainty by Collecting Data at High Levels Based on Previous Categories

TACTICAL INFORMATION-PROCESSING

1. Information Categories Set by Task Needs
2. Flexible Roles Based on Task Skills
3. Slow to Adopt New Technology if it Requires High Technical Skills
4. Low Communication between Levels (Periodic Negotiation)
5. High Communication within Levels (Sharing)
6. Responds to Uncertainty by Collecting Data at Low Levels and Dealing with There

We are not now concerned with growth. Thus, given high or low levels of information growth in organizations, and given our previous discussion of (A) the role of organizations in socio-economic distribution and (B) the historical scenario of organizational factors in developing nations, what surrogate factors may be monitored to indicate whether an organization does or does not process information in a way which is apt to favor the rural poor during the "program mutation" process?

The variables in Tables 9 and 10 are presented as indicators of information-processing which influences the distribution of project benefits. The indicators correspond with project system levels. This facilitates a design focus. However, they also correspond with hierarchical divisions of environmental organizations. Thus, the indicators may be used during appraisal, design and implementation of distribution-oriented projects.

In conclusion, two items should be noted. First, we have not specified any intervention strategies. Such strategies require a further theoretical statement and articulation of contingencies. This is a focus of the final report. Second, we should keep in mind a statement made by the eminent anthropologist, Sir E.E. Evans-Pritchard--"Theories give meaning to facts, facts never give meaning to theories".²³ This study is merely an attempt to bring a semblance of order to the infinite complexity surrounding organizational dynamics in development. Its value will lie in its usefulness to project managers. We make no claims upon truth. We merely entertain hopes that it may result in the development of "less crude techniques".

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From an address delivered at the University of Edinburgh, Scotland, in the spring of 1972.

TABLE 9: Independent Variable Information Theory Constructs And Corresponding Project Specific Operational Variables

<u>Information Theory Construct</u>	<u>Project Specific Operational Variables</u>
1. <u>Internal Subsystem (Information Sharing).</u>	<u>Subproject--Village Area</u>
a. Information Independence. The degree to which information obtaining/processing potential is concentrated in a few subsystem positions. High independence means a poor distribution as in a centralized structure	1a. POPIMP Behavioral measure of actual potential for obtaining information. 1b. DEGCOMM Behavioral measure of actual concentration on the assumption that greater two-way flow means less concentration.
b. Position homogeneity. The degree to which positions in the subsystem are homogeneous. High homogeneity suggests shared information DSE (detector, selector and effector) units or shared filters, memories and decision matrices	1c. POPCON Behavioral measure of population investment as a result of information processing. 1a. LEADSOC Indicator of where key leaders in the network were socialized.
c. Unit size. The degree to which effective informal communication can take place as function of number of participants. Large size means ineffective communication	1a. POPSIZE Indicator of how many residents in the sub-project area.
d. Diversity of Communication Channels. The number of information channels operating in a subsystem. Diversity should be positively related to levels of information sharing	1a. SUBDIV Indicator of how many alternative ways a message may be transmitted in the sub-project.

2. Internal System (Information Sharing)
 (External Subsystem Communications)

Project Area--Many Villages

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>a. Information Independence.
 The degree to which information obtaining/processing potential is concentrated in a few system-wide locations. High independence means a poor system-wide distribution</p> | <p>1a. LEADIMP
 Behavioral measure of actual potential for obtaining information.</p> |
| <p>b. Position Homogeneity.
 The degree to which positions in the system are homogeneous. High homogeneity suggests shared information</p> | <p>2a. LEACOMM
 Behavioral measure of actual two-way flow. The greater the flow, the less the concentration.</p> <p>3a. SUBCON
 Behavioral measure of the contributions various subunits make.</p> |
| <p>c. Unit Size.
 The degree to which effective communications can take place as a function of number of subunits in the system. Large size means ineffective communication</p> | <p>1a. TRAINING
 Indicator of where key leaders trained.</p> |
| <p>d. Diversity of Communication Channels.
 The number of information channels operating in the system. Diversity positively related to levels of information sharing</p> | <p>1a. PROSIZE
 Indicator of how many subunits are in project area.</p> <p>1a. PRODIV
 Indicator of different channels for transmitting information in the project system.</p> |

Table 10: OPERATIONAL DEFINITIONS OF THE INDEPENDENT VARIABLES

<u>Short Label</u>	<u>Content</u>	<u>Metric</u>
1. INCOMM	Internal communication within the sub-project	Index of items a-e below
a. POPIMP	Involvement in sub-project decisions regarding aspects of implementation (activities, priorities and mechanisms for implementation) (Measure by counting number of villagers which attend sub-project organization meetings or their equivalent)	% of local population (A break out by women, ethnic groups, laborer vs. landholder, etc. is also possible.)
b. DEGCOMM	Two-way communication between sub-project participants and sub-project decision makers in local area (Measure by counting number of contacts flowing from and to sub-project participants)	Ordinal scale
c. POPCON	Contribution of labor and/or money to sub-project during implementation (Measure % of local inhabitants actually contributing)	% of local population
d. LEADSOC	Socialization of area leadership decision makers. Raised until age 12 in local area (Measure sub-project decision makers)	% of decision makers
e. POPSIZE	Sub-project area size (Measure household heads in area)	# of household heads
f. SUBDIV	Diversity of communication channels in sub-project area (Measure by # of information contacts from different sources)	Ordinal scale

Table 10: Continued

<u>Short Label</u>	<u>Content</u>	<u>Metric</u>
2. EXCOMM	External communications between sub-project and project components	Index of items a-e below
a. LEADIMP	Involvement in project decisions regarding aspects of implementation (Measure by number of sub-project decision makers which attend project organization meetings or their equivalent)	% of sub-project decision makers
b. LEACOMM	Two-way communication between sub-project leaders and project leaders (Measure by number of contacts flowing to and from project personnel)	Ordinal scale
c. SUBCON	Contribution of labor and/or money to sub-project during implementation (Measure total amount of sub-project contribution)	Amount of money and labor time
d. TRAINING	Training of sub-project decision makers beyond grade 6 outside of the project area (Measure by number who have received either long or short-term training)	% of sub-project decision makers
e. PROSIZE	Project area size (Measure number of sub-project areas in the project)	# of sub-projects
f. PRODIV	Diversity of communication channels in project area (Measure different channels for transmitting information in the project area)	Ordinal scale