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**GUIDELINES FOR THE EVALUATION  
OF  
CAPITAL PROJECTS**

**AGENCY FOR INTERNATIONAL DEVELOPMENT  
Washington, D.C. 20523**

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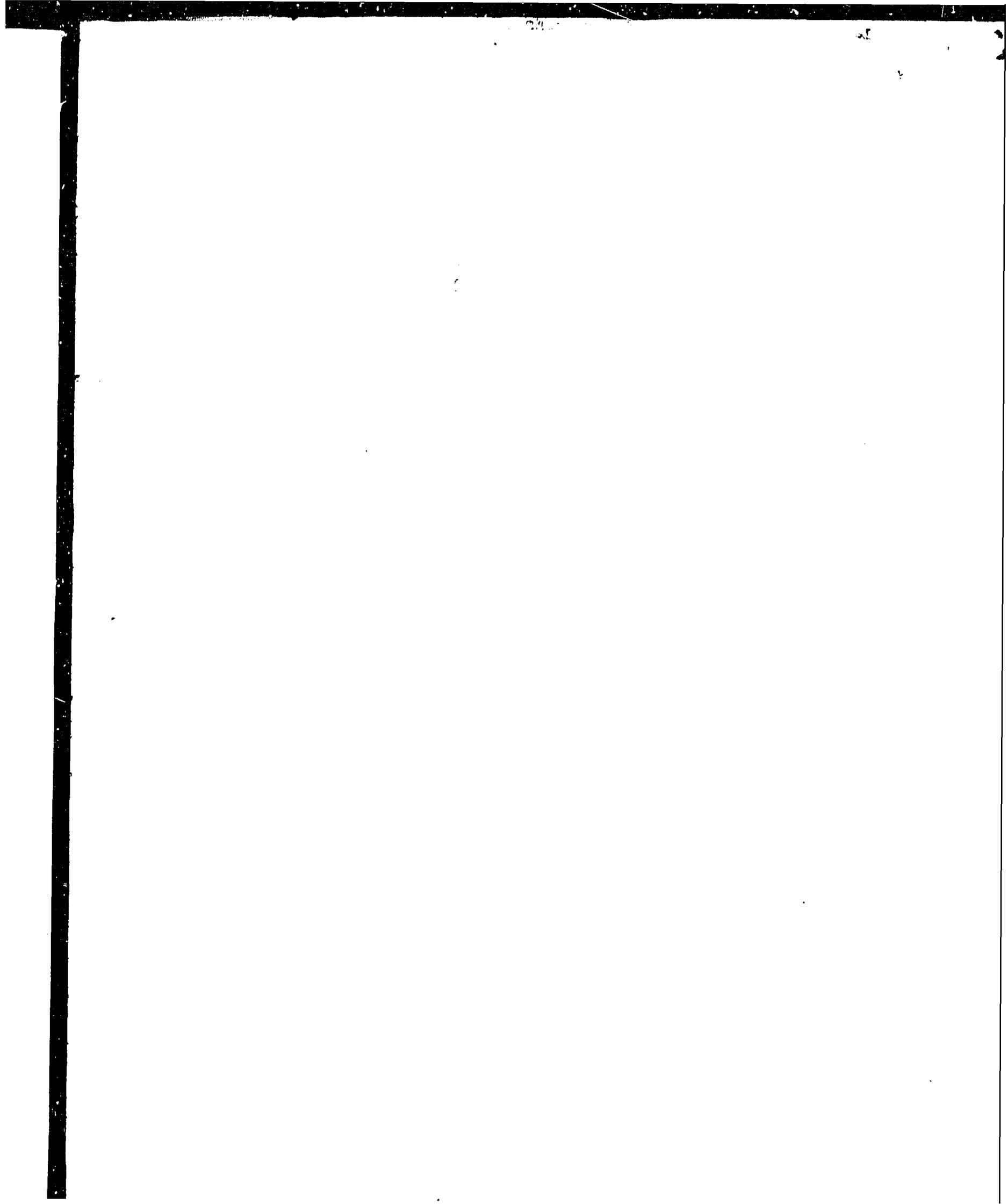
# GUIDELINES FOR THE EVALUATION OF CAPITAL PROJECTS

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## Guidelines for the Evaluation of Capital Projects

### Introduction

These guidelines are intended to assist in the evaluation of capital projects as defined in 1442.1, paragraph 1.4 (b) as well as projects in which the major component fits this definition but which also contains related elements of institution building, human resource development and/or social services.

The reasons for these separate guidelines are:

- A requirement for the evaluation of all forms of project assistance has been established by the Agency.
- While it is Agency policy to integrate forms of assistance, the Agency recognizes that each form does have certain unique functional characteristics to which management systems must be responsive.
- Agency, host country and implementing agents engaged in capital project operations have had relatively less exposure to the design and evaluation concepts and processes which are now embodied in the new combined project documentation system.
- Pending publication of those parts of the new Project Handbook which will deal with evaluation, interim guidelines are needed.

These guidelines are based largely upon the methodology and experience developed in the technical assistance/grant project area. They should be used in conjunction with Project Evaluation Guidelines, Third Edition, M.O. 1026.1, Supplement I (the Green Book) which spells out in greater detail the project evaluation process.

Annex B entitled, Special Capital Project Considerations, attempts to highlight those characteristics which are unique to capital type projects.

Although the guidelines do not contain detailed procedural treatment of AID-host country roles and relationships, the intent of the guidelines is to assure that the evaluation process is carried out with the fullest possible collaboration.

These guidelines are tentative: they need field testing and the informed scrutiny of experienced staff. Comments on the utility, relevance and clarity of the guidelines are invited. AID/W plans to review the utility of the guidelines after approximately six months of field use. AID/W is now developing evaluation methodology for applications beyond the project level, i.e., for subsectoral, sectoral and program levels. Until this

methodology is available, evaluators concerned with such programs may wish to refer to the approaches followed in the June, 1973 evaluation of the Ethiopia agricultural sector loans and the LA Bureau's four volume evaluation of agricultural sectoral lending in Colombia, Costa Rica and Guatemala.

A. Definition

Evaluation is the retrospective analysis of experience to determine what happened and why.

The relationship between project design and project evaluation can be defined as the relationship between prediction and verification. Design is essentially a statement of a hypothesis, a projection, a prediction of what the designer hopes and plans to achieve -- evaluation is an analytical process wherein the evaluator attempts to test, prove, verify and validate that the designer's anticipated results are indeed happening and to determine why it did or did not happen as planned.

Evaluation differs from implementation monitoring in the following ways:

The implementation monitor generally accepts the project objectives and underlying design assumptions as given, and within that framework concerns himself with assuring that:

- resource inputs are properly selected, procured, delivered, processed, and installed in accordance with official procedures and with the project implementation plan.
- implementation actions are accomplished in accordance with the implementation plan and in compliance with accepted AID management standards.
- outputs are being achieved according to plan.

In pursuing these questions, the monitor is additionally concerned with the effectiveness of project management, efficiency in use of resources, and compliance with official policies and regulations.

The evaluator challenges the relevance of the project objectives, the underlying assumptions, and all elements of the project design. He is concerned with progress at all levels (outputs, purpose, sector goal) and seeks to discover the causal factors responsible for progress and/or nonprogress.

Two areas of common interest to both the implementation monitor and the evaluator are:

1. In a project with evaluation elements and an evaluation action plan built into the design (See Section B below), the monitor

will routinely collect and record the data needed by the evaluator to evaluate progress toward established targets.

2. The monitor is concerned with outputs because their achievement is the ultimate measure of the performance of the implementing agent and the effective utilization of resource inputs. The evaluator is concerned with outputs because their achievement is a necessary precondition for accomplishing the project purpose and consequently the sector/program goal.

B. Incorporation of Evaluative Elements and an Evaluation Action Plan into the Project Design

New Projects

To make a project evaluable:

1. The project design must contain precise and explicit descriptions of those elements upon which evaluation subsequently depends:
  - targets expressed in terms which are finite and verifiable.
  - progress indicators at the output, purpose and goal levels.
  - a clearly delineated causal connection between the project purpose and the sector goal to which the project contributes.
  - clearly defined internal linkages between inputs, outputs and project purpose.
  - design assumptions based on prior feasibility analysis, about the external factors affecting the project.
  - baseline data.
2. The project design must contain an evaluation action plan including:
  - review of prior experience with similar projects elsewhere to the extent possible.
  - specific provisions for collecting (a) any additional baseline data as needed over and beyond that collected at earlier stages and (b) progress data during implementation.
  - periodic evaluation.

For details, see M.C. 1025.1 (transmittal letter 9:194) issued April 30, 1974.

### Ongoing Projects

For ongoing projects, if these evaluation elements and actions were not built into the design, evaluation will certainly be difficult. In such a case, follow the procedure outlined in section C below.

### C. The Evaluation Process

Experience in evaluating ongoing grant/technical assistance projects over the past three years has shown:

- # For most projects it is not possible to evaluate progress toward established targets in a meaningful way until (1) the evaluator has considered any changes in the host country socioeconomic setting which may have significantly affected the project, and (2) the existing project design has been reexamined and clarified.
  
- # The first of these considerations, the assessment of changes in the host country socioeconomic setting, may well be demanding and difficult, requiring data collection and analysis as well as extensive discussion with all collaborating agencies. For ongoing loan funded programs/projects in which the host country has substantial implementation responsibility, the design clarification process may result in changes which require renegotiation and reapproval by both the host country and AID/W. This is discussed in section C, Feedback, Replanning and Followup below.
  
- # When this assessment of changes in the project setting results in substantial redesign, it will not be possible to evaluate progress toward the new targets immediately. Depending upon the extent of the redesign and the revised implementation plan, it may be appropriate to postpone the evaluation for a year or more. (See last paragraph of section 1 immediately below.)

The evaluation process for ongoing projects comprises three separate but integral steps:

1. Changes in the Project Setting - Assess changes in host country circumstances, policies and priorities which impinge upon the project. This is not intended to be an exhaustive reexamination of the original conditions and circumstances which existed at the time the project was conceived. It does not envision, for instance, that the original feasibility study be reconstructed or the demand analysis be redone. It only requires that obvious changes be identified and weighed to see if they are substantially affecting the relevance of the project or project progress. Items to be considered include illustratively:

- a. Changes in the nature and magnitude of the problem to which the project is addressed.
- b. Validity of original feasibility data and estimates.
- c. Changes in physical and environmental conditions.
- d. Changes in demand.
- e. Changes in competitiveness.
- f. Changes in host country development policies and priorities.

An issue often arises in preparing for the evaluation of ongoing projects of whether to evaluate recent progress/achievement against the original objectives which were established in accordance with policies and priorities in effect at that time, or whether to evaluate recent progress/achievement against the kind of objectives which would reflect today's policies and priorities. To evaluate against the original objectives, when it is clear that those original objectives are no longer valid in today's policy context, would not serve the continuing operational needs of the project managers. For this reason, we have formulated the preevaluation step noted above, Clarification of Project Design to assure that the project design is relevant to today's need and that subsequent evaluation of progress is done on that basis. As noted above in the introduction to C, The Evaluation Process, where the preevaluation assessment of changes in the project setting results in substantial redesign, evaluation of progress should be postponed until implementation of the redesigned project has proceeded for a year or more. If this procedure is followed, the evaluation of recent progress will always be based on an updated design. Any basic changes in the project targets or design resulting from the assessment would of course require both host country and AID/W approval.

2. Clarification of Project Design - Clarify existing project design elements, including:
  - a. targets at output, purpose, goal levels;
  - b. assumptions;
  - c. indicators;
  - d. test causal linkages between inputs, outputs, project purpose and sector goal to establish that the linkages are viable.  
A simple method for testing the linkages is found in Annex C.

The two steps described above are intended to:

- a. Establish whether the project still warrants continuation in the light of current host country and AID policies and priorities.
- b. Confirm whether or not the key project design elements are still valid in the light of changing host country circumstances and if they are not, make them so.
- c. Determine whether the design elements are stated in terms which are sufficiently precise, explicit, finite, and verifiable to permit meaningful evaluation, and if they are not, make them so.

The methodology to be used in the design clarification process is the logical framework matrix which has been applied to noncapital projects since 1971. Most ongoing capital project documents do not include the logical framework matrix as such, although some logical framework elements, usually output targets, are articulated in the documents. In those cases where a logical framework matrix does not exist, the design clarification process should produce one.

Guidance in the logical framework methodology is found in the Project Evaluation Guidelines, third edition, M. O. 1026.1, Supplement I, pages 5-24. Advice is available from the Mission Evaluation Officer. Training is given in the AID Program Design and Management II Seminar (PDM II) in Washington; field versions of this seminar are conducted in response to Mission request.

It is important to note that while the logical framework matrix contains the key design elements (targets at the output, purpose and goal levels; progress indicators, assumptions and causal linkages), other design elements (baseline \*; statement of the development problem to be solved; analysis of socioeconomic setting; project strategy; implementation plan) are described elsewhere in the project paper.

### 3. Evaluation of Progress and Search for Causal Factors

The introductory section of Annex B discusses the application of evaluation requirements to various types of capital projects. The evaluator is advised to review Annex B in planning his evaluation study.

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\*If indicators are expressed in terms of changes from X to Y then much of the key baseline data will be in the matrix.

Evaluation of progress/achievement can and should be made easier by the improvements in project design described above. If the targets are explicit and precise, the indicators are properly formulated, the assumptions are clearly articulated and the other design elements (project strategy, work plan, etc.) are well defined, then evaluation costs will be reduced correspondingly.

When the project is on course and progress data has been routinely collected as part of the implementation plan, the indicators should confirm that no further data collection and analysis is needed.

When the indicators show that the project is not on target, and the evaluator must search for causal factors, the search is made easier if the various design elements and assumptions were previously spelled out.

Progress toward project output targets - using output indicators, and the progress data routinely collected by project monitors, determine if the planned outputs are being achieved on schedule. If progress data to support the indicators has not been routinely collected, this must be done retroactively.

If the planned outputs are not being achieved on schedule, search for causal factors. At the input to output level, the causal factors will usually be found in three categories:

- a. The resource inputs were not available when or where needed, not appropriate, or not adequate in amount and/or quality.
- b. The implementation plan was overoptimistic in scheduling commodity/equipment deliveries, construction, training or some other implementation action.

N.B.: Network analysis (CPM, PERT, etc.) is an effective way to reduce scheduling and implementation problems; if the project input-output level has not been networked, this should be done.

- c. The performance effectiveness of one of the implementing agents (suppliers, trainers, contractor/PASA, AID/W back-stoppers, the host country, other donors) was inadequate.

Progress toward project purpose - using the end-of-project-status indicators (i.e., progress indicators at the purpose level) determine whether the availability of project outputs is resulting in achievement of the project purpose as planned, e.g., as

cultivated areas are increasingly served by the expanding irrigation system (output), are we achieving anticipated increases in per hectare yield (purpose). If the indicators show that the project purpose is not being achieved on schedule; search for causal factors. At the output to purpose level, one major causal factor may be that the project design was unrealistic, i.e., it proposed an unattainable level of expectation, or was flawed in other respects. It is also possible that the causal factors may be found in the level of performance of one of the participating parties or in some aspect of the host country situation. More specifically, the latter type of causal factors will usually be found in these categories:

- a. Host country:
  - enthusiasm and support;
  - capability to finance project requirements;
  - managerial capacity;
  - will and motivation to tackle institutional, political, social and legal obstacles.
- b. The performance of collateral projects, programs and policies contributing to the same sector goal.
- c. The effectiveness of incentive systems and motivational techniques.
- d. Behavior of market forces, changes in effective demand, absorptive capacity.

Contribution of project purpose to sector goal - using the indicators of goal achievement, determine whether the project is making its planned contribution to the sector goal. If it is not, search for causal factors. At the purpose to goal level, the causal factors will usually be found in these categories:

- a. level and nature of economic activity, e.g., demand, price and employment levels.
- b. policy, legislation and institutional factors impinging on the project.
- c. effect on the development program of political climate/stability.

Special guidance for dealing with the measurement of project impact/contribution at the sector goal level is found in Annex A.

D. The Evaluation Review

As the result of the evaluation requirement for noncapital projects, most USAIDs have a well established review procedure. This should be followed for capital project evaluation reviews. Further guidance will be found in Project Evaluation Guidelines, third edition, M.O. 1026.1 Supplement I (the Green Book), the Evaluation Review, Section V., pp. 27-31.

E. Reporting

At this time, no special evaluation report format is prescribed for reporting the results of the evaluation process and review to AID/W. In those cases where the Mission finds the PAR format useful, this may be used. If the PAR format is not used, a brief report of 2-3 pages should be submitted including the following:

1. Does the progress to date suggest that the original targets: outputs, project purpose, impact on sector goal can be achieved, given the existing resource inputs, managerial capability, work plan, and operational circumstances. If not, what kinds of changes are needed? Are these changes feasible: are the costs of these changes justifiable within the cost-benefit constraints of the project?
2. Are the original planned targets still relevant in the light of (a) current circumstances and (b) current host country and AID policies and priorities. If not, what kinds of changes in targets are needed and feasible?
3. Are there alternative approaches -- other than the project -- which would achieve the desired developmental goal more effectively, e.g., changes in host government policy, legislative reform, price and market incentives, etc.
4. A copy of the logical framework matrix.

F. Feedback, Replanning, Follow-up

As a result of the conclusions reached in the evaluation review:

1. Implement replanning actions which require no further approval from AID/W.
2. Submit justification and new documentation for replanning changes where required by AID/W.

The types of decisions which arise from an evaluation during implementation could cover a spectrum of replanning changes. At one end of the spectrum is a situation which would involve only changes in type and mix of inputs, no substantial change in outputs or project purpose and no change in cost. This situation would be wholly consistent with the established legal and financial framework of the project; the changes would be decided and implemented by

the parties participating in the evaluation review without the need for formal AID/W review and approval.

At the other end of the spectrum is a situation involving changes in project purpose which would alter the basic intent or direction of the project, as well as changes in financing. This situation would be inconsistent with the established legal and financial framework of the project and would require formal approval from AID/W and/or the host country.

Between these extremes are situations where the changes are not major, but are beyond the present authority of the evaluation review group to approve in the absence of higher level concurrence.

The evaluation review group should (a) differentiate its replanning recommendations among the categories described above, (b) take prompt action where it has authority under the loan agreement and (c) agree on recommendations which will require AID/W and/or host country approval.

#### G. Coverage and Application of Evaluation Requirement

While evaluation is decycled from the budget process, evaluation findings should contribute to budget decisions as well as to project management decisions. As noted in "C ., The Evaluation Process", above, projects which are reasonably on track do not require extensive data collection and analysis. There will, however, be projects which require more thorough examination to determine the continuing relevance of the project design and underlying assumptions in the light of experience and changing host country circumstances. A suggested order of priority for such in-depth evaluations is:

1. Projects (ongoing or terminated) for which follow-on projects are in the planning or review stages.
2. Projects which are due for evaluation in accordance with their initial design and implementation plan.
3. Projects with implementation problems which appear due to invalid assumptions or appear to affect the basic logic of the project.
4. Ongoing projects which have been active for over three years and have not previously had an indepth evaluation.
5. Projects which terminate during the year, not already covered in "1" above, in areas of future programming concern.

ANNEX A

Project Impact/Contribution to Sector Goal

The project designer is responsible for predicting the amount and nature of the project's impact on -- or contribution to -- the sector goal. The evaluator is responsible for verifying whether -- and to what degree -- the prediction was valid and accurate.

The act of predicting requires that the purpose-goal linkage be fully articulated. Much of the material in this section is devoted to that difficult task. If the linkage has been fully articulated at the design stage, evaluation is at least possible. If the linkage has not been adequately defined at the design stage, evaluation may be very difficult -- or impossible.

Bear in mind that Agency experience in dealing with the project purpose-sector goal linkage is very limited. Missions are urged to report their experiences and best advice in this area.

1. The project designer begins his prediction by considering the sector goal established in the sector plan. The sector goal normally is composed of two elements:
  - a. The target audience; e.g., farmers in the northern provinces with annual incomes of less than \_\_\_\_\_ pesos and farming plots of less than \_\_\_\_\_ hectares each; urban dwellers whose income is less than \_\_\_\_\_ pesos annually and whose diet is deficient in calories, protein, etc. per FAO standards.
  - b. The impact on -- or contribution to -- the target audience which the sector planners want to make, e.g., increase in annual income from \_\_\_\_\_ to \_\_\_\_\_ pesos; expansion of employment opportunities from \_\_\_\_\_ jobs to \_\_\_\_\_ jobs; decrease in mortality/morbidity rate from \_\_\_\_\_ to \_\_\_\_\_.

Thus the sectoral goal is what we want to accomplish. Our exemplary sector goal will be:

Expand the quantity marketed from \_\_\_\_\_ to \_\_\_\_\_ and reduce the per unit costs of production for all domestically produced foodstuffs for low income urban dwellers from \_\_\_\_\_ to \_\_\_\_\_.

2. The project designer must then define how -- and how much -- his project will contribute to the sector goal, i.e., he must define the partial causal linkage between the project purpose and the sector goal.

To achieve the sector goal normally will require a variety of efforts: policy reform, institutional change, investment programs, and individual development projects. Therefore, the impact/contribution of a single development project to the sector goal will be only partial. The extent of the partial impact/contribution must be defined by the designer to permit subsequent verification by the evaluator. Project purposes are usually something like: increased production or expanded availability of food, creation of industrial production, quantitative/qualitative improvements as education, existence of curative/preventative health facilities and services, etc.

For our chosen example, let us assume that there will be three interrelated agricultural production projects contributing to the sectoral goal, along with such nonproject activities as a price support incentive policy, capital investment programs in rural infrastructure and institutional reform programs. The three projects are livestock production, cereal grains production and production of vegetables, legumes and pulses. Our project is the livestock production project and its purpose is to raise the supply of meat available to the target audience from \_\_\_\_\_ to \_\_\_\_\_ and reduce the unit cost from \_\_\_\_\_ to \_\_\_\_\_.

3. Having defined the project purpose, the designer must formulate a set of end-of-project status indicators which will permit him to measure progress toward achievement of the terminal conditions which will exist at the time the project purpose is achieved.
4. Having defined how -- and how much -- the project purpose will contribute to the sector goal, we must go back to the sector level and formulate a set of progress indicators to measure the amount of contribution/impact at the sector goal level which will be made by our project. If the sector goal is to:

increase supply of all foods,

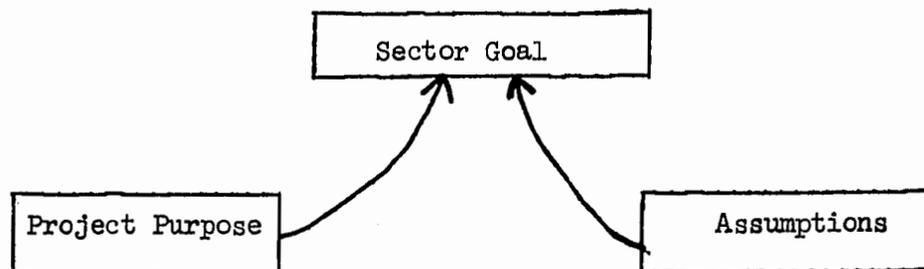
then the partial contribution/impact to be made by our project is to:

increase the supply of meat.

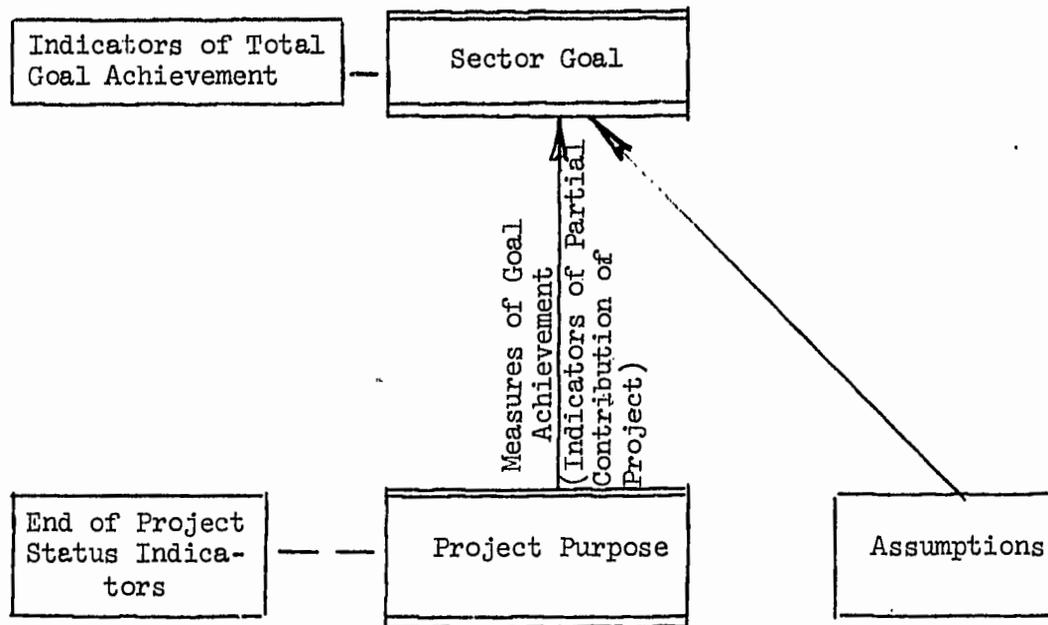
5. Note that the sector planners have defined the total sector goal and hopefully have formulated a set of indicators to measure total progress (from all sources) toward that goal. Note also that as project designers/evaluators, we accept the total goal although our project will contribute only partially to the total goal. Therefore, we must formulate a special indicator(s) to selectively measure that partial contribution. In our example, the indicator(s) would simply measure that component of the increase in the supply of total food availability contributed by our project, i.e., the meat component.
6. Identify the external factors which will affect the purpose to goal causative linkage and state these factors as assumptions which must occur if the causative linkage is to be effective.

In our example, the assumption may be:

- no substantial illegal export (smuggling) of meat to neighboring countries.
  - price of livestock will be low enough to attract urban consumer.
  - effective demand (i.e., consumer purchasing power for meat) will match production levels.
  - storage, slaughterhouse, shipping facilities will be adequate to handle increased production.
7. Recognize the following project purpose to sector goal relationships:
    - the project purpose is a necessary but not sufficient condition for the planned contribution to the sector goal.
    - the assumptions are a necessary but not sufficient condition for the planned contribution to the sector goal.
    - the project purpose and the assumptions, taken together, constitute the necessary and sufficient condition for the planned contribution to the sector goal.



8. As a project designer we have now fully articulated the purpose goal linkage:



9. As an evaluator, our task is:

- (a) using EOPS indicators, determine progress toward project purpose; if progress is as planned, then,
- (b) using measures of goal achievement, (i.e., indicators of partial contribution of project) attempt to determine impact/contribution of project to goal.

However:

- (c) if impact/contribution is less than planned, search for causal factors, i.e., are the assumptions occurring as anticipated?

Special Capital Project Considerations

This section describes a number of policy and operational factors which may influence project progress in a planned or unplanned manner. Conversely, these factors may be influenced by the project in a planned or unplanned manner. Whether they are cause or effect, planned or unplanned, these factors should be carefully considered during the design and evaluation process.

It is often stated that capital projects, by their very nature, cannot be usefully evaluated during the implementation period. The contention is that:

- a. The thoroughness and technical character of the preplanning and feasibility stages make evaluation less necessary.
- b. Changes in capital structures are not practicable during construction, i.e., you cannot move a dam upstream, you cannot redesign a bridge when it is half completed.
- c. The process of changing a capital project during construction is so difficult and costly, including renegotiation with the host country and reapproval by both governments, as to be impractical.

As the Agency moves away from financing capital structures and toward the solution of more complex development problems in agriculture, health, nutrition, population and education, the project portfolio will contain an increasing number of projects which (a) embody a mixture of capital, technical and other assistance modes, (b) are time phased, and (c) are experimental in character.

The challenge to the evaluator -- and to the designer as well -- is to differentiate that which is unchangeable/unevaluatable from that which is subject to orderly change and consequently is evaluable. Such changes will become easier to accomplish if the design and evaluation processes are pursued jointly by the host country and AID.

The items which immediately follow describe areas of change and are intended to help the evaluator make this differentiation.

1. Changes in the program/sector goal and project purpose. The possibility for this kind of change arises when: (a) the host country development needs and priorities substantially change from the time the project was originally approved; e.g., new national policies, unexpected growth or stagnation in a related sector, a newly emergent sectoral analysis and plan, (b) implementation experience shows that the original goals and purposes are less relevant or beneficial than some newly perceived alternative; (c) unsatisfactory experience with a similar project in another location becomes known.

2. The validity of project design assumptions. Assumptions about external environmental and operational influences need to be reexamined and tested in the light of changing circumstance. To revalidate design assumptions requires a look at: (a) quality and reliability of data, e.g., newer data may have emerged from project implementation operations or other development activities in the area; (b) a clearer view of performance, e.g., often the project design assumes certain kinds of skills, levels of input, attitudes, capabilities, etc., on the part of the host country, implementing agent, other donors; implementation experience can show whether the capability and the will exists; (c) the environmental and operational circumstances, exchange rates, raw material and equipment costs, and any other economic, social and physical factors impinging on the project which can affect the original planning assumptions.
3. The project design. Even though concrete and steel are formidably permanent, once set in place change may nevertheless be possible in the design of the project. Realignment of equipment and the substitution or addition of auxiliary equipment may permit substantial change in output at marginal cost. Relocation of water courses, rearrangement of maintenance facilities and re-routing of transit routes may sometimes improve operations of infrastructure projects with little disruption. Similarly, revisions in technical training and in internal organizational policies and practices can reorient projects.
4. Planned production of goods and services. New data on -- or changes in -- local income levels and distribution, savings and consumers attitudes, since the project was launched may have a real and potential effect on the demand pattern. Similarly, changes in marketing and distribution mechanisms, e.g., availability of credit or access roads, may warrant restudy of planned market target group and areas. The demand of local industry for newly available electric power may be influenced by an unanticipated cutback on import licenses.

Where the construction is partly or totally completed and the equipment purchased or even installed prior to the unexpected change in demand, it may not be possible to bring about change without incurring substantial additional costs. In such a case the evaluator must determine, through analysis, (i) whether any changes are technically feasible and (ii) the costs and benefits of effecting such changes compared to the costs and benefits of proceeding with the original project.

5. Management policies. This is probably the area of greatest potential and flexibility in responding to changes suggested by interim evaluation. It may also be possible to advance the

causes of popular participation and social equity in sharing the benefits of the project. It is generally within the capability of host country officials during and after project implementation, to adjust price and rate structure for the goods and services produced by the project. Dividends, amortization rates, working capital, and other financial practices are also susceptible to realignment as are wages, houses, working conditions and the entire range of management-labor relations. Changes in organizational structure, managerial skills, technical processes, raw materials, etc., are management prerogatives.

6. The effective fulfillment of covenants. Some project documents call for host country actions which by their nature require more than routine compliance monitoring. The host country and AID might agree to the promulgation of a more equitable tax code or the creation of an educational analysis and planning office, as a condition precedent to a loan. Routine monitoring will determine that the compliance aspects (the completed building, the hired staff, the published document) are fulfilled, but program evaluation is needed to establish that the activity is viable, is performing effectively, and is contributing to development.
7. Other situations where evaluation may be appropriate are:
  - a. prior to decisions on extension, expansion or other follow-on actions;
  - b. where significant implementation delays suggest the need to search for causal factors;
  - c. when implementation costs substantially exceed estimates.

The material which follows describes a number of factors of concern to the project designer. Since the evaluator must evaluate change predicted by the designer, these factors are of concern to the evaluator also. The following material is neither comprehensive nor definitive. For further guidance, refer to the appropriate policy determination, guidelines, handbooks and Manual Orders.

As noted in C-1, bottom of page 4 of the guidelines, the evaluation process does not require an exhaustive reexamination of the original feasibility, demand, or other analysis. It merely requires that obvious changes in the original circumstances be weighed to determine if they are causal factors, i.e., if they are affecting the relevance of the project or its progress.

- I. Economic Performance and Viability - These considerations involve the project's immediate economic context. They generally affect the output to purpose linkage in the logical framework.

## ANNEX B

- 18 -

The key criterion is the project's contribution to production measured by an economic rate of return. The contribution may take several forms:

- # actual production of goods and/or services;
- # increased use of goods and/or services already being produced (including reduced spoilage and waste):
- # increased foreign exchange earnings or savings;
- # better mobilization of capital, e.g., increased tax revenues or higher private savings;
- # investment incentives created, such as secondary mortgage markets to encourage liquidity;
- # changed internal government policies or practices, e.g., development vs current expenditure budgeting.

Costs are the costs of raw materials, energy, tariffs, wages, equipment, construction, transport, storage, engineering, redesign, etc.

Benefits may be measured in terms of increased output (at market prices or at shadow prices) or in terms of increased income accruing to target population, or in terms of nonmonetary variables like better health and education.

No attempt is made here to provide specific guidelines for the analytical methodology appropriate to each project category (like economic or social infrastructure, revenue-producing public or private activities, and intermediate credit institutions). The points below are general guidance for an orderly analysis of typical projects, irrespective of classification. (One basic distinction which is given some attention below is that between revenue-producing and non-revenue-producing projects.)\*

### Comparison Against Other Investment Alternatives

Our primary concerns are the project contributions to the economy of the recipient country and to the well-being of its people. Unless there are other strong justifications, a project should have been selected from among available investment alternatives on the basis of the highest net returns, including social as well as private benefits. In actual practice, comparable alternatives are seldom available for immediate investment action. More frequently selection is between technical alternatives of the same project, where the highest ratio between the value of expected output over the life of the project and the investment input and operational costs, (cost-benefit ratio) should guide the investment decision (where both costs and benefits are discounted by the opportunity cost of capital).

In the absence of specific project alternatives, we can at least compare economic benefits obtained from the proposed project with actual (if available) or imputed returns on other investments, which are often referred

\* More detailed discussion of this and other points in this Annex will be found in the "Analysis" sections of the A.I.D. Project Handbook.

to as the "marginal opportunity cost" of capital. This cost is a measure of the return to capital in its most productive alternative use. In general, if the new benefits are not at least equal to this opportunity cost of capital, the project was not economically justified, and its financing must be justified on other grounds. Comparison of investment opportunities can be based on discounting: annual costs and returns to base year values using an appropriate discount rate (the marginal opportunity cost of capital). This discount rate will generally be above official interest rates and closer to rates of return on private sector investment or to informal or curb market interest rates.

(Note: Concessionary interest rates charged by AID are irrelevant to appraise an investment decision.)

Before computing net economic returns of the project, actual cost and return data should be examined to determine if the values were distorted by administrative pricing, licensing schemes, prohibitive taxes, subsidies, protective tariffs, wage and labor policies, etc. If such distortions were substantial, adjustments such as the use of shadow prices should be made to arrive at realistic social cost-benefit comparisons. Such adjustments may show, for instance, that a profitable project in a protected market may have had a much smaller or even negative effect on the national economy.\*

Here again, a practical approach is required. Since for instance a small project may not have a substantial impact on the whole economy, it should be considered on its own merits within sectoral priorities and existing market situations. On the other hand, a large-scale enterprise should be carefully examined in terms of national goals.

Additional adjustments are necessary if there has been over-valuation or undervaluation of local currency. In these cases the costs covering dollar expenditures (including recurrent imports of raw materials) should be increased by the overvaluation (decreased in case of undervaluation) and compared with a series of revenues also adjusted for the discrepancy of the external value of local currency. (An alternative approach is to value imported components at world prices.)

#### Market for Project Outputs

The original project approval should have been based on a market analysis to establish:

- a. Demand for products, services, or funds over the life of the project;
- b. Competition from local and foreign suppliers of close substitutes for the output.

\* Methods for making such adjustments are generally called "shadow pricing". For further discussion, see A.I.D., Project Handbook, "Economic Analysis" section.

Subsequent evaluation should consider the effects of the project's outputs upon a number of important factors, including the production and consumption of closely related substitute and complementary commodities, changes in prices and changes in the level of income.

Consideration must also be given (and if necessary, adjustments made) to quality, size of marketable units, packaging, financial and delivery terms, market coverage, etc. Use of national statistics without regard to particular area of influence or market served could lead to serious analytical errors and wrong conclusions. The market analysis must also take into account distortions of the price system resulting from government policies, such as: artificially high exchange rates, import or export controls and duties, administrative pricing, licensing schemes, subsidized interest rates and investment subsidies which affect profitability of a revenue-producing activity. For protected industries, there should be evaluation of the degree and the length of time of the protection.

## II. Financial Integrity and Performance

This is the relationship between the enterprise's income and costs. For revenue producing enterprises, a basic determinant of income is the market price of the goods and/or services produced. Generally affects output to purpose linkage.

Indicators of financial soundness might include:

- # debt-equity ratio;
- # breakeven point;
- # profit and loss data;
- # cash flow;
- # internal rate of return;
- # marginal opportunity costs of invested capital;
- # rate of return on equity;
- # relationship of projected revenue to operating costs, debt repayments, maintenance, contingency reserves, tax liability and expected dividends;
- # dependence upon or exemption from:
  - protective tariffs and import quotas;
  - taxes and subsidies;
  - price control.

For nonrevenue enterprises, it will not always be possible to value expected output. In an educational project the value of school graduates could be based on differential analysis of incomes of graduates vs. nongraduates. But other projects may need to be appraised by comparison of costs of alternative means of producing the same output measured in nonvalued terms. This is known as the cost-effectiveness approach. For example, one may compare the costs of alternative means of reducing morbidity and mortality by a given amount or changing health practices in specified ways.

### III. Organization/Management

This set of considerations, which applies to noncapital as well as capital projects, and primarily affects the input to output linkage, includes:

- # appropriateness of centralized or decentralized organizational structure and services in light of market served;
- # organizational flexibility for orderly growth and change;
- # organizational and functional delineation of responsibilities;
- # internal and external communications including evaluation and feedback for management decisions;
- # relationships between management and government, labor, and the financial community;
- # attention to the consumer's needs and interests;
- # adequacy of internal budget system;
- # quality and competence of management;
- # management policies on internal allocation of financial resources and manpower;
- # management policies on price, investment, and other external financial questions;
- # appropriateness of wage structure in the light of local conditions and labor productivity.

### IV. Social and Cultural Feasibility

These factors generally affect the output to purpose and purpose to goal linkages. What type of involvement is expected of the groups and individuals on whose continuing active participation the technical, economic, and managerial feasibility of the project depends? What types of existing (including traditional) forms of social organization and institutional mechanism can be used to assure active and sustained participation?

Do these need to be modified to achieve project objectives, what new organizations and institutional mechanisms must be created? Are the present values, attitudes, motivations, patterns of association, and other aspects of behavior of these groups consistent with the kind of participation expected?

How do prospective participants/beneficiaries perceive the project and its purposes and how do these purposes coincide with their own priorities? This is a basic question for design, appraisal and evaluation, but is often overlooked.

Some factors to be considered are:

1. Ability to tolerate the risk inherent in the adoption of an innovation;
2. Compatibility of a new product or practice with local tastes, habits, and needs (e.g., cultivate a new and more productive type of grain which produces bread with unfamiliar taste or consistency or provides less straw for animal feed;
3. Compatibility with existing division of labor (e.g., introduction of crops or farming techniques which require male labor in a society where men do not work in the fields or training men in new agricultural practices when women do the farming;
4. Land or water rights systems which make adoption of new practices not worthwhile to tenants;
5. Mobility and stability of labor (e.g., willingness of under-employed rural workers to work on public works projects which keep men away from house).
6. The discount rate which governs societal attitudes toward saving and investment vis-a-vis consumption.
7. Threat to existing patterns of power and social control (e.g., fear of clients in a traditional patron-client relationship that participation in a marketing or credit cooperative will result in reprisals by patrons and loss of valued services).
8. Fear by weak communal groups that shift from subsistence to commercial agriculture will make them more vulnerable to control and exploitation by more powerful groups outside their community.
9. Social distance between groups and change agent, which may impair confidence and complicate communication.

## V. Technical Feasibility and Soundness

These factors affect the input to output linkage:

- # Efficiency of proposed equipment, methods and processes to be used, taking into consideration climate, soil, culture, regional characteristics, relative supplies of labor and capital, etc.;
- # Provision for possible future modification and expansion;
- # Sources of equipment, raw materials, fuel, power, water, labor (considering especially local availability and need to import, develop, or train);
- # Further planning, design, and implementation activities such as: engineering, specifications, site acquisition, right of way; ordering, manufacturing, delivery, and installation; construction, exceptions to normal AID rules;
- # Degree of labor intensivity and sophistication of technology.

## VI. Equity and Benefit Incidence

The initial and most critical opportunity for treating equity and benefit incidence is at the problem identification and planning stages. At these early stages, the sector planner and/or the project designer identifies as explicitly as possible (a) the group(s) whom the project is intended to help, (b) those who are likely to be adversely affected, and (c) those who may be indirectly affected (either positively or negatively) such as ultimate consumers of a product, the price of which is reduced. In other words, how are the benefits and burdens of the project distributed among different geographical, functional (e.g., farmers, herdsmen, farm laborers, construction workers), or communal groups and what is the socio-economic standing of these groups relative to the national or regional level of income and well-being? What, if any, compensatory measures are contemplated to reduce the burden on those who may be adversely affected?

In dealing with equity/benefit incidence a limited number of criteria seem especially important for assessing the social costs and benefits of capital projects. These criteria, which affect the output to purpose and purpose to goal linkages are as follows:

- A. Access to resources and opportunities (e.g., land, capital credit, education, markets) and in what ways and to what extent such access is broadened (or narrowed). The questions to be identified and analyzed under this heading would include, in the case of an agricultural loan, trends in land tenure arrangements and how they would be affected; the availability to target farmers of improved inputs (seeds, fertilizers), implements and the credit with which to finance them; access to technical information and to markets, including the

existence and extent of farm-to-market roads; and how price policy, including taxes and subsidies, affect the target group. This criterion measures the potential effect of the project on the distribution of wealth and income.

- B. Employment. In a sense this is a special case of access to resources and opportunities (i.e., productive work) but because of its special importance it deserves to be treated separately. Among the issues to be covered here are factor intensity and the related question of the amount and type of employment to be generated or eliminated as a result of the project, as for instance by the introduction of labor-absorbing or labor-replacing practices and equipment. It is especially important to consider the implications for target groups which are already characterized by serious unemployment/underemployment, such as both urban and rural unskilled workers and the educated unemployed.
- C. Rural displacement, migration, and urbanization. This criterion is concerned with what groups might be pushed off the land or in other ways uprooted as a result of the project, where they would be likely to move to, and how they would be reabsorbed into the economic and social life of the country.
- D. Changes in power and participation as between the target group and different socio-economic, regional, ethnic, and other groupings and the implications thereof for public policy. Each of the three preceding criteria is related to the redistribution of power and of opportunities for participation, but it is also necessary to recognize how such shifts affect the capacity of different groups to influence public policy.

In analyzing the social implication of a project proposal under each of these four criteria, precision should be stressed and quantitative data should be developed wherever possible. Quantification clearly is easier for some criteria, such as the employment effect and the access to resources of target groups, than for say, the effect on the distribution of power and influence. Despite the difficulties of measurement, quantification, even if only in orders of magnitude, remains important to support the qualitative analysis. Where quantification is not possible, specificity should still be stressed as much as possible.

#### VII. Ecology and Environmental Concerns

Design and evaluation criteria, which affect the input to output linkage, include the avoidance and/or maximum reduction of potential deleterious environmental effects including air, water, thermal, noise and other pollution, noxious emissions, effects on ecological systems, use and/or distribution of potentially toxic materials, pesticide and herbicide contamination, deterioration of productive land, inadvertent spread of disease vectors, etc.

More detailed guidance is available in the Environmental Assessment Guidelines Manual, September 1974 published by SER/ENGR and in MC 1214.1 dated September 20, 1971.

#### VIII. Integration of Women in Development

Section 113 of the Foreign Assistance Act of 1973, known as the Percy Amendment, stipulates that the Act "shall be administered so as to give particular attention to those programs, projects, and activities which tend to integrate women into the national economies of foreign countries, thus improving their status and assisting the total development effort."

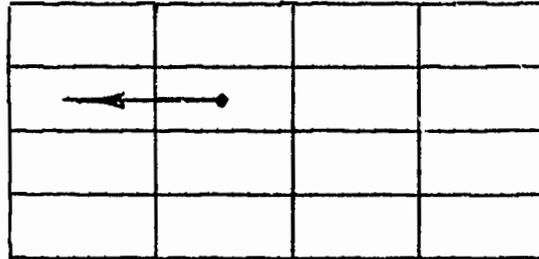
When new projects are designed, consideration must be given to the constraints -- cultural, institutional, political, or legal -- which limit women's participation and indicators designed to measure the effects -- positive and negative -- that the activity has had on the economic and social role of women should be incorporated in the project design.

In the case of ongoing projects, the direct and indirect effects the project may be having on the status of women should be one of the important issues to be considered during the regular evaluation process. Where appropriate, consideration should be given to modifying the design in order to increase the positive or reduce the negative effect of the project on the integration of women into the national economy. These considerations generally operate at the output to purpose and purpose to goal linkage level.

Testing Causative Linkages

A combination of four simple tests, based upon the informed judgment of the designer/evaluator, can be applied to each of the causal linkages in any project design (input-output, output-purpose, purpose-goal) to determine the viability/probability of the causal relationships. To illustrate, the four tests are applied to the output-purpose linkage as follows:

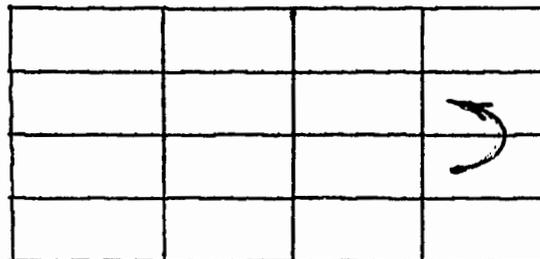
1. Examine the end-of-project status indicators (purpose level indicators) to determine:



- a. if the indicators directly and accurately measure the terminal conditions which will exist as a concomitant of the project purpose and,
- b. if the terminal conditions will indeed comprehensively reflect the achievement of the project purpose.

This first stage of testing is to gain confidence that the terminal conditions have been thoroughly considered and then effectively expressed in the form of indicators. If the answer to the first test is yes, go the second test.

2. Examine the assumptions about the output-purpose linkage to determine:



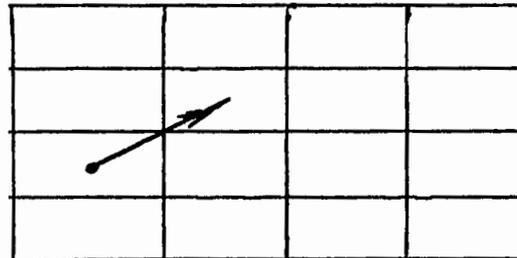
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- a. if the assumptions comprehensively address all the external factors which might impinge directly and importantly on the output-purpose linkage and,
- b. if the assumptions are realistic, i.e., have a high probability of occurring.

This second stage of testing is to gain confidence that the external factors have been carefully analyzed and weighed. If it was not possible to state the assumption in explicit and precise terms, this may be a signal that additional feasibility analysis is needed. If an assumption can feasibly be brought into the project design and included as an output target, this should be done since it decreases uncertainty and increases the probability of success. If an assumption can be included as a target in another related project or program, this should be done. If the answer to this test is yes, go on to the third test.

N.B.: The output to purpose assumptions are a necessary but not sufficient condition for achievement of the project purpose.

3. The third stage of testing is to consider whether the outputs are sufficient in kind, quality and magnitude to lead to the end of



project status conditions (terminal conditions). If not, what changes in the project outputs are required? If the answer to this test is yes, procede to the fourth test.

N.B.: The outputs are a necessary but not sufficient condition for achievement of the project purpose.

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4. If the answers to the prior three questions were yes, i.e., if both the assumptions and outputs in combination were necessary and sufficient, then the fourth test should yield an affirmative answer.

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The fourth and closing test is to consider whether the outputs will result in the project purpose (with the assurance that the other necessary but not sufficient condition, the assumptions, would occur as anticipated).

If the first three tests come out affirmative and there is still doubt about the fourth test, go back and reexamine the first three tests.

This testing technique should also be applied to the input-output and the purpose-goal linkages.

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After this is done, the final test of causality is ask whether the project inputs are adequate to make the planned contribution to the sector goal (again with assurance that the assumptions would occur as anticipated).