

A.I.D. USE OF DEVELOPMENT INDICATORS

A Progress Report

Prepared by:
Practical Concepts, Inc.

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A. SCOPE OF THE ANALYSIS AND METHODS USED

This analysis is a by-product of a report entitled "Indicators of Social and Economic Development: Assessment of Practice in the Agency for International Development," prepared in November, 1972, by Practical Concepts Incorporated (PCI) at the request of the Technical Assistance Bureau. (Contract AID/csd-3375, Work Order #5)

The study of indicators included examination of 204 PARs and PROPs. These documents set forth some 494 Goal and Purpose level objectives for which there were 1,154 indicators. Output level indicators were not included in the study.

AID defines objectively verifiable indicators as explicit and specific criteria or measures designed to provide objective assessment of project progress. Page 67 of the AID Evaluation Handbook states that:

"Good project design must include prior definition of what will be measured to demonstrate progress (indicators) and how much (targets). Ways of verifying progress should be objectively stated so that both a proponent of a project and an informed skeptic would agree that progress has or has not been as planned. Pre-establishing objectively verifiable indicators and targets helps focus discussion on evidence rather than opinions."

Each of the 1,154 indicators were judged against the following criteria:

1. Plausibility: A plausible indicator is one with which a credible causal relationship -- direct or indirect -- can be established, and which either varies with change toward the desired condition or is a concomitant of the achievement.
2. Independence: The purpose and goal level indicators are independent of those conditions necessary and sufficient to achieve the objectives (Purpose or Goal). In an hypothesis of the form "If A, then B," production of "A" cannot be used to verify achievement of "B";
3. Objectively Verifiable: Ways of verifying progress should be so stated that both a proponent of a project and an informed skeptic would agree that progress has or has not been as planned;
4. Targeted: Indicators should state both a magnitude and a time when the desired change should be observable.

B. SOME GENERAL CHARACTERISTICS

The summary findings reveal that:

1. Missions have made important progress in project design. Specifically, Input, Output, and Purpose definitions are more clearly differentiated than was the case in prior examinations.
2. There are major deficiencies in use of the "horizontal logic" in the Logical Framework (Narrative, Indicators, Means of Verification). However, most of these can be readily corrected.

1. Multiple Objectives

As noted in Table 1, items 1, 2, and 3, multiple goals and purposes are still used to define project objectives (for 205 projects there were 243 goals and 251 purposes), but to a lesser extent than shown

TABLE 1

QUANTITATIVE SUMMARY OF CHARACTERISTICS
OF DATA BASE AND ASSESSMENTS RELATIVE
TO CRITERIA FOR "GOOD" INDICATOR USAGE

| Data Base Characteristics and Criteria for Assessments of Usage | Total all Sectors | | Agricul- ture | | Health, Family Planning | | Education | | Public Adminis- tration | |
|---|-------------------------|----|------------------|----|-------------------------------|----|-----------|----|-------------------------------|----|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| 1. Number of Projects | 204 | | 72 | | 43 | | 36 | | 53 | |
| 2. Number of Goals | 243 | | 90 | | 56 | | 41 | | 56 | |
| 3. Number of Purposes | 251 | | 90 | | 61 | | 38 | | 62 | |
| 4. Objectives with no Indicators | 112 | 27 | 46 | 32 | 16 | 16 | 17 | 24 | 33 | 32 |
| 5. Use of Multiple Indicators: | | | | | | | | | | |
| • 1 Indicator | 61 | 14 | 17 | 12 | 22 | 22 | 8 | 11 | 14 | 13 |
| • 2 Indicators | 46 | 11 | 16 | 11 | 14 | 14 | 9 | 12 | 7 | 7 |
| • 3 Indicators | 54 | 13 | 19 | 13 | 17 | 17 | 10 | 14 | 8 | 8 |
| • 4 Indicators | 63 | 15 | 16 | 11 | 22 | 22 | 12 | 17 | 13 | 12 |
| • 5 or more Indicators | 84 | 20 | 30 | 21 | 8 | 8 | 16 | 22 | 30 | 28 |
| 6. Total Number of Indicators | 1154 | | 379 | | 239 | | 206 | | 330 | |
| 7. Rating of Indicators: | | | | | | | | | | |
| • Plausible | 649 | 56 | 237 | 63 | 120 | 50 | 113 | 54 | 179 | 54 |
| • Independent | 677 | 59 | 257 | 68 | 124 | 52 | 115 | 56 | 181 | 55 |
| • Objectively Verifiable | 914 | 79 | 315 | 83 | 219 | 92 | 160 | 78 | 220 | 67 |
| • Targeted | 179 | 16 | 62 | 16 | 23 | 10 | 38 | 18 | 56 | 17 |
| 8. Relative Number of Criteria Satisfied by Each Indicator: | | | | | | | | | | |
| • Satisfied None | 105 | 9 | 13 | 3 | 7 | 3 | 22 | 11 | 63 | 19 |
| • Satisfied 1 | 307 | 27 | 78 | 21 | 98 | 41 | 59 | 29 | 72 | 22 |
| • Satisfied 2 | 207 | 18 | 93 | 24 | 20 | 8 | 34 | 17 | 60 | 18 |
| • Satisfied 3 | 413 | 36 | 155 | 41 | 98 | 41 | 65 | 32 | 95 | 29 |
| • Satisfied 4 | 122 | 10 | 40 | 11 | 16 | 7 | 26 | 13 | 40 | 12 |

in an earlier study* completed in 1970. The important point is not simply whether or not more than one objective is defined, but the extent to which multiplicity reflects ambiguity. If we start with a project and then define objectives, we will almost inevitably define potential multiple effects. If we start with an objective, or objectives, and then define plausible projects, we are able to focus on the important reasons for the project -- that which spells the difference between "success" or "failure."

In some cases, projects are specifically designed to simultaneously achieve more than one objective, and the objectives are not hierarchical, i.e., do not have a means-end relationship. For example, the differing and sometimes conflicting objectives of production (e.g., wheat production) and benefit incidence (e.g., increased rural income) or institution building (e.g., extension service). In such a case, the objectives and the relationships between these must be explicitly defined in order to create an effective development design and to permit subsequent verification.

Another case where multiple objectives are consistent with the Logical Framework is where a Mission finds it a useful way of tracing linkage between the project and higher level objectives. Sometimes, Missions compress a hierarchical, means-end relationship into a one-sentence statement which purports to be a single objective -- usually at the goal level -- but which is actually multiple objectives. An example would be, "To increase wheat production in order to increase farmer income." However, to trace this progress, there must be

* Installation of the New Project Evaluation System within USAID Missions; Contract AID/csd 2885. Practical Concepts Incorporated.

indicators for each part of the means-end connection -- e.g., production and income. To clarify the linkage, some Missions have added a horizontal line to the Logical Framework matrix, splitting the goal statement into sub-sector and sector levels.

2. Objectives Without Indicators

Approximately 27% of the project objectives had no indicators attached. These objectives were almost exclusively goals (implying that nearly 50% of goal statements were without indicators). This finding is probably influenced by the PAR format. The PAR asks the Mission: "Will the achievement of project purpose make a significant contribution to the programming goal, given the magnitude of the national problem? Cite Evidence." This has led to some confusion. In many cases, the Mission appears to consider that evidence or assumptions that it is plausible that the project will affect the goal is sufficient -- leading to such statements as: "Because we are doing A, B will be affected," without any proof that it will, or evidence that it has. On the other hand, AID/W's intent is that Missions should define indicators (and actual evidence) that the program goal, or at least a specified part of that goal, is being advanced through the project.

3. Multiple Indicators

Most AID technical assistance projects have objectives (purposes and goals) that cannot adequately be captured by only one indicator. It is, of course, quite possible to have one indicator where the

objective is clearly and simply, say, to reduce the birthrate.* However, for a complex project -- i.e., to improve administration of a tax office -- we need several indicators to show that the project is achieving the desired impact. Ideally, a group of well chosen indicators will make it very clear what we expect to achieve because of "improved administration." (See Example 5 on page 9.)

The sample of projects reviewed reveals relatively extensive use of multiple indicators, indicating an understanding of the complexity of most of the project objectives. In the aggregate, over half (50%) of the objectives had at least two indicators. On the other hand, there is an apparent relationship between the clarity of the objective and the number of indicators used, with more indicators being used for more abstract (or more vague) objectives. At one extreme, 27 indicators were used to reflect one Purpose-level objective: "To develop the legal, administrative, and institutional framework to increase revenues of local governments from their own sources and to upgrade their operating capacity."

The optimum number of indicators is that minimum number necessary to demonstrate that the project is achieving its objective. If this "minimum set" seems to be cumbersome, it may be that the objective is vague, or too complex and that it should be refocused. Such an objective is illustrated in the following:

* Note that even in a seemingly well-defined objective such as birth-rate reduction, multiple indicators may be used either because of inaccurate information on the primary indicator, or to obtain faster feedback (some indicators change slowly, making it difficult for AID project managers to draw conclusions about the project during its life).

EXAMPLE 1: OVERLY COMPLEX OBJECTIVE

PURPOSE: "To develop & encourage adoption of economic & fiscal policies designed to optimize mobilization of resources for economic and social development; to improve & expand data on which more effective economic planning can be based; to strengthen ... institutions; to encourage ... planning technology, ..."

EOPS:

- "Effective development program;
- Valid and reliable ... data;
- Effective planning organization;
- Appropriate system for planning."

In this example, the purpose includes so many broad objectives that the EOPS also becomes too broad for easy assessment of progress. In order to formulate indicators, it is first necessary to simplify the purpose statement. This may be done by eliminating some of the objectives and deciding that one is the most important. Alternatively, the analyst may decide that some of these objectives are at the goal level (e.g., mobilization of resources) and some are at the output level (e.g., better data and trained planners). The purpose might then be "sound economic and fiscal policies," for which several indicators dealing with identifiable characteristics of policies might be devised.

C. INDICATORS RATED BY CRITERIA FOR GOOD PRACTICE

1. Plausibility/Independence

As noted in Table 1, over one-third of the indicators did not satisfy the criteria of plausibility and/or independence described on page 2. The dominant factor in this assessment is independence, a factor of particular importance in the case of institutional development projects. Simply stated, the term independence means that output

and purpose must be verified separately and independently from each other, as they are different in kind.

In two of the sectors studied in the sample, Education and Public Administration, most projects focus on institution building. The indicators for these demonstrate the observed difficulties. In the case of Education, only 56 percent of the indicators were judged to be independent and only 55 percent in Public Administration. These indicators were particularly difficult to assess because the purpose level objectives were so frequently merely a restatement of project outputs -- the most common type of difficulty. Examples 2 and 4 illustrate this problem. Examples 3 and 5 illustrate good practice.

EXAMPLE 2: EDUCATION PROJECT

Poor Practice

PURPOSE: "To introduce basic innovations in the secondary education system in the fields of curriculum design and methodology ..."

EOPS INDICATORS

1. The new curriculum has been designed ...;
2. The faculties of education are oriented ...;
3. Curriculum and school organization extended to satellite schools ...;
4. Ministry of Education has been reorganized."

In this example, there are two weaknesses. First, the stated purpose is little more than a concise restatement of the outputs; a means-ends hypothesis is nowhere in evidence. At some point in a series of means-end linkages we expect to produce a developmental change, to solve a developmental problem which is the purpose of the project. We do not seek to create new curriculum as an end in itself but as a means: If we introduce basic innovations in the secondary education system (means),

then the rate of learning will increase or the drop-out rates will be reduced (ends).

Second, given the fact that the purpose is not different in kind from the outputs, the EOPS indicators are inevitably terminal output statements rather than indicators of the end of project status.

An example of more effective practice is shown below. In this example, the objective is not to establish a school, but to demonstrate the value of a particular type of school. The indicators, although not always targeted, reflect both viability and effectiveness of the project.

EXAMPLE 3: EDUCATION PROJECT

Good Practice

PURPOSE: "A fully viable secondary school ... which demonstrates value of ... education for women; combined vocational/academic training; inter-tribal/inter-denominational education."

EOPS INDICATORS:

- "1. School has demonstrated it can perform effectively without external assistance;
2. Annual number of women earning GCEs increases by at least as many as graduate from School;
3. Fifty percent of girls enroll in vocational type courses;
4. Distribution of religions and tribes represents that of the population of the LDC, and they are living harmoniously together;
5. Increasing number of applicants above cut-off point for secondary school admission list the School as first preference;
6. Graduates are accepted for appropriate positions and are performing well;
7. Media give the School favorable coverage."

Some further examples taken from Public Administration projects show the same kinds of contrasting practices. Example 4 restates outputs as End-of-Project Status indicators. Example 5 goes beyond this stage to measure the results of an improved administration system.

EXAMPLE 4: PUBLIC ADMINISTRATION PROJECT

Poor Practice

PURPOSE: "To modernize host institutional capability for better financial administration." (underlining added)

EOPS INDICATORS:

1. Coordinated Government-wide accounting system;
2. Improved budget organization structure;
3. Effective post-audit system;
4. Modern money management procedures;
5. Established procurement procedures."

The question that should be answered by the purpose-level indicators is: "how will an observer know that we have achieved better financial administration?" The systems listed above as EOPs are actually deliverable outputs. These outputs may be necessary for good administration but do not themselves indicate better administration.

EXAMPLE 5: PUBLIC ADMINISTRATION PROJECT

Effective EOPS Indicators

PURPOSE: "To improve Office of Inland Revenue Tax Administration Capabilities."

EOPS INDICATORS:

1. Increased proportion of population filing tax returns;
2. Increased added assessments following audits;
3. Decrease in protests following assessments;
4. Returns to be examined based on expected yield;

5. Decreased audit time;
6. Decreased computer cost and increased data processing output."

While the indicators in Example 5 lack specific targets, they show what the Mission expects to happen as a direct result of the improved procedures -- not merely which procedures will be in place, as in Example 4.

The indicators in Example 5, if they were "targeted" would also show when the Mission expected these things to occur, and how much -- i.e., what percentage increase of population filing tax returns does the LDC want, or need; by when? (e.g., 35 percent of population filing by 1975). These indicators would then be close to "ideal."

Failure to carefully articulate the expected development impact of a project can preclude examination of plausible alternative projects. If the stated purpose of a project is to build a university, the only alternatives which present themselves are questions of "How to do it?" If the stated purpose is to satisfy the demand for physicians (or engineers, technicians, etc.) then the alternatives one is led to consider include training in the U.S. or third country, importing expatriates, establishing a temporary training facility, etc.

2. Objective Verification

By far the largest percentage of projects were judged to have indicators that were objectively verifiable: 79 percent of all indicators reviewed. The finding is perhaps not surprising, especially in view of the number that were essentially restatements of terminal project outputs. The picture is somewhat less clear when the

evidence of progress columns are examined to determine whether or not the indicators are supported by some adequate data sources and means of collection. At the Goal level, such mechanisms are rare.

In one example of 'poor practice,' "stability of the political climate" was used as an indicator of a law enforcement project. Without further clarification (i.e., indicators of the indicators) it appears unlikely that the Mission or cooperating country would be able to gather evidence.

In another project, the project team elected to utilize indicators that, while still reasonable indicators, were, by their own admission, less than optimal due to the cost of collecting data on "ideal" indicators. This type of statement in a PAR reflects that the project team gave serious thought to the practical application of the indicators.

Finally, an important tenet of the evaluation system is to measure what is important, not only what is easily measured. Note here that, due to the study constraints, PCI did not attempt to assess whether what was being measured was "important," only whether "It is likely that such information could be collected." Nor was any attempt made to assess the intent or probability that such data would be collected in the host country.

3. Targeted Indicators

Making targets and timetables explicit is important as a standard of comparison for judging actual progress. "How much?" is a hard question; it needs to be answered, however, if we are to develop a reasonable basis for future evaluations.

The absence of targets in so many of the indicators (85 percent lacked complete targets) reflects perhaps the most glaring deficiency in the current state of the art. Frequently the evidence column suggests that progress is indeed being made. Yet, the documents consistently omit reference to how much is "enough" progress. This deficiency rarely occurs at the output section where quantitative targets are almost always used. In direct contrast to this, qualitative targets at the output level are rarely used. We know with relative certainty how to project and measure the completion of school buildings, training of teachers, etc., but it is harder to measure how well they have been done. We also know that these activities do not result always in achieving our purpose, e.g., having made a fixed investment in constructing buildings for an institution, need is often perceived for continued technical assistance until the institution is fully mature and viable. Decisions must be made either to allocate resources to an on-going project, or to use those resources to sponsor a different, perhaps newer approach. Without indicators that are adequately targeted, decision makers are forced to weigh opinion rather than evidence.

4. Overall Assessment of Indicators

The overall state of the art in AID use of indicators was assessed by examining the extent to which the indicators satisfied all of the criteria for good practice. As can be seen from Table 1, only 10 percent of the indicators reviewed satisfied all four criteria for good indicators. The main deficiency was the absence of targeting. Forty-six percent of the indicators satisfied at least three criteria. If we examine indicators without reference to targets, we would conclude about one-fifth of the indicators need improved objectivity and about two-fifths require improvement in plausibility or independence.

D. "UNOBTRUSIVE" INDICATORS *

Missions do not have to look any further than their own project documentation in order to make substantial improvement in indicator usage.

Although this analysis focused primarily on the indicators explicitly defined and used in the documents reviewed, USAIDs also implicitly define indicators without recognizing that they have done so; these may be called "unobtrusive" indicators. In several instances, for example, a Mission stated the reasons for initiating a project in the PROP narrative or in the Goal level "evidence" (Section V-B) of the PAR. These "reasons" often make good indicators if reversed or rewritten, but may be overlooked when Missions define their indicators —

1. Changes in Conditions

The most direct indicators reflect a desired change in the conditions which were initially the "reasons" for starting the project. For example, a goal-level statement that a training institution was an "essential pre-requisite to the elimination of illiteracy" should have led inevitably to illiteracy rate as an indicator. In fact, no indicators were given at the goal level which illustrates that the Mission was either unaware that they had a reasonable indicator at hand, or that supporting data were not available. This particular project also illustrates how clarification of the goal might have led automatically to the indicator of illiteracy rates. The goal is stated as "Institutions with a capability to train the human resources required for socio-economic development." The appropriate indicator

*The concept of "unobtrusive" indicators is derived from the term as defined and used by Eugene J. Webb et al in their book Unobtrusive Measures: Non-Reactive Research in the Social Sciences. Rand McNally & Co., Chicago, 1970.

at the goal level should answer the question, "Why are we building this institution?" If the answer is "To eliminate illiteracy," then this should be a goal level objective, and at least one indicator, "illiteracy rates" (targeted appropriately), would almost automatically suggest itself.

In another project, the Goal evidence section of the PAR observed, "This faculty now attracts more and better students." The quality of incoming students provides a good independent measure of the reputation of the institution, yet it was not used as an indicator in the Logical Framework for this project.

2. Hypotheses as Indicators

For a third project, a series of hypotheses were used in the Goal evidence section (V-B) of the PAR to define the expected contribution of the project to the goal:

GOAL: "To assist the Government in developing a public utilities and transportation structure necessary for the economic growth of the LDC, including the operation and maintenance of already-completed infrastructure which will increase economic production in the short run."

"EXPECTED CONTRIBUTION"

- "1. Increased access mileage will provide additional potential agricultural access;
2. Higher standard maintenance will decrease hauling costs for agricultural products;
3. Additional mileage properly maintained will enable a greater flow of manufactured goods in country;
4. Additional access will allow for trading with the adjoining countries."

With minor revision, all four of these hypotheses could be transformed into indicators of goal achievement -- i.e., for number 1: "X acres opened up for agricultural development by 1976" -- yet it is unclear that they were intended to be used as such. As currently used, they represent informed opinion.

3. Omissions Reflect Doubts

How many of these "unobtrusive" indicators reflect actual oversights on the part of Missions and how many reflect realistic doubts that the project can in fact have any impact on the goal, is an open question. The following is an illustration of the latter of these two possibilities.

The project is basically a training project. Section V-B of the PAR (Contribution to Goal) reads:

"Ability to plan and implement development programs is concentrated now in the hands of a minute number of educated and experienced individuals. In addition, the country suffers from critical lack of skilled and semi-skilled manpower, has a high unemployment rate due to lack of economic activity. Investment requires promotion, information, and a pool of skilled workers among the other factors." (underlining added)

Potential Indicators are:

- Increased availability of skilled and semi-skilled manpower;
- Unemployment rates;
- Amount of investments;
- Number of new ventures;
- Per capita income.

Note that none of the above indicators has been used. It is, however, implied that they will be affected, but with a caveat that the minor

investment (\$75-100,000) will yield only a minor return. Yet the PAR asks how much contribution the project will make given the magnitude of the problem. The question is relevant, since AID is attempting to obtain maximum leverage with its assistance projects. Many project managers sense the magnitude of the problem, and the failure to specify objectives in measurable terms may reflect a reluctance to identify a relatively minor contribution of their project. This approach fosters the impression that any project addressing the problem is bound to be worthwhile.

E. SUMMARY

The evaluation process has already brought important benefits to AID's program of non-capital project assistance. Evaluation is a means to an end; the end is improved, i.e., more cost-effective, projects. The observed changes in design clarity reflect real progress by virtually all Missions. The PCI study highlights the areas in which increased attention by Mission personnel will accelerate the type of gains already achieved.

Two areas in particular deserve greater attention.

1. Targeting

Defining the expected change that will be achieved by a project is simpler to discuss conceptually than it is to accomplish for real projects. It is often the area of greatest uncertainty, demanding judgments to be made on the basis of inadequate historical experience. Yet, improvements in this area are vital to the decision process involved in weighing alternative uses of the Agency's limited resources. It may well be necessary to identify the extent of the uncertainty through the use of intermediate measures, or by careful

examination of other, similar AID projects. AID's ability to predict the extent of change possible will be improved if the Agency continues (1) to stress the identification of appropriate measures and collect information against those measures, and (2) to ensure that the information so collected is used as the basis for refining subsequent targets. In short, dramatic change may not be possible, but steadily improving changes in the accuracy of the original hypotheses should be expected.

2. Independent Measures

The study indicates continued difficulty in measuring purpose objectives independently of outputs. Improvement in this area can be achieved by the Missions through more intensive questioning in Mission reviews to further clarify objectives and to focus on what happened because of the outputs.

Thus, although progress has already been achieved, Missions should be able to effect still further improvement without external assistance to the considerable benefit of AID's development programs.