AIR-39400-3/74-FR

ASSESSING THE IMPACT OF PARTICIPANT TRAINING ON THE ATTAINMENT OF DEVELOPMENT GOALS

PHASE 1: METHODOLOGICAL RESEARCH

Submitted to:

Office of International Training
U. S. Agency for International Development
Washington, D. C. 20523

American Institutes for Research

March 1974

TABLE OF CONTENTS

INTRODUCTION

This report is a "source book" as well as report, and therefore so bulky. Much of the text is devoted to descriptions of elements to be incorporated in field impact assessments, better suited to use than to casual reading. An introductory road-map and overview of the content may help.

The scope of the project was essentially that of a feasibility study, with a level of effort of approximately four man-months of senior staff time. The question to be answered was whether techniques could be devised for measuring the effectiveness of participant training in terms of the impact of returned participants on the development of their countries. The answer was to be in the affirmative, and to take the form of a prototype methodology for carrying out such impact-oriented assessments.

Section I discusses this objective and the methodological difficulties it poses, and outlines the essentials of the study design. This was to assemble a large sample of discrete, specific impacts that former participants have achieved since their return, to determine which of these can be attributed to participant training with reasonable assurance, and to induce from these findings the types of "indicators" that a field evaluator should look for in a follow-up impact assessment.

Section II describes the process of data collection, in Ghana and Thailand. A total of 492 separate reports was assembled, each describing a specific achievement of a returned participant (or of one of the small sample of non-participants also included). Several different methods for collecting such information were tried. Interviews of the participants themselves were found to be most productive, and these interviews were the source of most of the data assembled.

Many of the reports were quite impressive. One cluster of reports, for example, showed clearly the impact of FAA training on civil aviation in Ghana. Returned participants upgraded the standards for aircraft separation in air traffic control, corrected the procedure whereby altimeters are tested, had a runway rebuilt, installed back-up air conditioning for sensitive electronic equipment, upgraded maintenance practices, and introduced a variety of other precautionary measures to make flying safer in Ghana. Another group of reports, assembled in both Ghana and Thailand, described important discoveries that should result in fairly immediate development gains. Former participants developed new hybrids, new ways of controlling pests, new cures for animal disease, even a new process for distilling spirits from refinery by-products that had previously been thrown away. From these reports and numerous others, it was clear that significant impact is being achieved.

Section III describes the first of the three ways in which these reports were categorized to reduce the data to a form from which indicators for use in future assessments could be developed. This first categorization was in accordance with the nature of the specific impact the participant achieved; i.e., the end-result of his actions. It led to a set of 20 distinct types of impacts, ranging from improvements in the institution's internal operations to direct impact on such more ultimate goals as illustrated by the examples of air safety and agricultural productivity noted above.

Section IV describes the second categorization of the results, which focused on the question of "How?" rather than "What?" This time, the reports were grouped in accordance with the nature of the "impact-producing characteristic" that each revealed; i.e., in accordance with the specific skill, attitude, or other resource that the participant brought to this situation to effect the impact achieved. A total of fourteen elements emerged from this analysis as the most common impact-producing characteristics. They span a broad range, from the participant's technical sophistication to his paper credentials.

In the development of indicators for field assessments, it was important to treat an impact produced by one participant characteristic as an occurrence quite different from the same impact produced by another participant characteristic. For, even though the end-results were the same, the paths that the respective participants followed in achieving these impacts were distinct, and seldom equally attributable to the outcomes of participant training. One path might be directly traceable to a specific training experience, while the second might show the influence of entirely different factors. And, for efficiency, the indicators provided the field evaluators of the future should focus on those kinds of occurrences that have a high probability of reflecting outcomes of participant training.

The combination of 20 types of impacts and fourteen different paths defined a set of 280 possible occurrences or "impact sequences" for which indicators might be developed. Of this theoretical maximum, 111 different sequences were actually found in the data. The next step was to determine which of these were most typically the results of participant training rather than extraneous factors.

Section V examines the attributability of these impact sequences to participant training. For this purpose, the reports were categorized a third time, in accordance with the "credibility" of the evidence that each provided of a direct link to an input or experience during participant training. A five-point scale of attributability was used for this classification, ranging from clear-cut links such as are shown by the direct application of a U.S. model, to no link whatever, as shown by a credible attribution to non-training sources.

On the basis of this analysis, 39 sequences were found to be so frequently attributable to participant training as to constitute productive foci for field assessments. Section VI develops prototype interview questions for collecting data on these 39 sequences, to show the format that suitable

field indicators should take. But it emphasizes that these are prototypes only, since exact forms and phrasings would vary for different applications and sites. It also suggests that they almost certainly do not represent the complete set of useful indicators because of the selected sample on which they are based, and that further experience may add a number of others. But, as a starting point for impact assessment they were thought to constitute an adequate list.

Section VII previews the practical applications that can be made of these procedures, and suggests specific next steps. Three different types of assessments are envisioned, to answer specific questions about program implementation and to provide overall policy guidance. All three focus on the evaluation of specific training activities rather than the traditional country-by-country assessments because aggregating the results by country is seen as an inappropriate procedure, that would lose most of the specific action implications that this new methodology affords.

The suggested next steps are to proceed to the second phase of instrumentation as planned, but to do this in the context of "live," operationally useful impact assessments. Because the present study made more progress on the instrumentation problem than had been anticipated, it seems possible to complete the research within the context of practical, scheduled follow-up studies.

* * *

The AIR team who took responsibility for this study included Drs. Paul A. Schwarz, Robert E. Krug, David J. Klaus, and Paul Spector. At critical stages of the project, they were joined by Professor Milton J. Esman of Cornell, Dr. Richard R. Rowe of Harvard, and Dr. Philip I. Sperling of the Office of International Training for all-day review and planning sessions.

Dr. Sperling developed the idea of undertaking this kind of research within AID, and served as the technical monitor as well as advisor.

Dr. Rowe took responsibility for the collection of the data in Ghana. He was assisted by Dr. Christian O. Agbenyega (himself a former participant under an earlier AID/AIR project), Mr. C.K. Brown, and Mr. T.S. Mate-Kodjo. Two local interviewers, Absorn Tryon and Pholachart Kraiboon, took responsibility for the data collection in Thailand. Dr. Steven M. Jung, the resident AIR representative in Bangkok, generously contributed evenings and week-ends to coordination, training, and problem-solving.

Many officials of the Government of Ghana, the Royal Thai Government, and the local AID Missions provided invaluable assistance with the many arrangements a concentrated data collection effort requires. We are especially grateful to the 134 Ghanaian and Thai officials who so patiently and thoughtfully answered our questions.

I: OBJECTIVES AND APPROACH

Since its inception even before the Marshall Plan in 1949, the participant training program of AID and its predecessor agencies has provided study grants to more than 167,000 professionals, administrators, and technical personnel from the developing countries. The vast majority of these grants (about 125,000) has been for training experiences in the United States, ranging from relatively brief observation tours through focused work-study programs to degree courses at the graduate and post-graduate levels. The fields in which training has been provided have spanned the full spectrum of economic and social development needs; the costs have exceeded 400 million dollars to date.

The overwhelming consensus, both here and abroad, is that no other form of technical assistance has been more productive than this training component. And there is no reason to doubt the validity of this general appraisal, or to subject it to rigorous test. At the present state of the art, the collective judgment of hundreds of independent observers is easily competitive with such more "scientific" assessments as might be conducted.

Yet, the lack of techniques for systematically measuring outcomes has unquestionably hampered the program. For the above, comfortable consensus on the program's overall value does not extend to the specifics of its implementation. Host country and USAID officials, contractor groups, participant nominees frequently espouse quite different views on the "right" training strategy to adopt in a given situation. The trade-offs between practical experience and paper credentials, between the richness of experience afforded by the U. S. and the closer fit to local conditions afforded by training centers in less highly developed "third" countries, between the customized programs that can be offered when participants are clustered

at one training institution and the diversity of perspectives they will obtain if dispersed over many are among the countless tactical issues that have long been debated but not yet resolved. Despite the widely acclaimed benefits of the program as it has been conducted, a facility for comparing Approach X with Approach Y and reaching a rational conclusion remains a significant need. Like all result-oriented endeavors, the participant training activity must have a well-functioning feedback loop to be fully effective.

A number of attempts to establish adequate feedback mechanisms have been made over the years. But these have failed to provide the pointed, credible data that is necessary for program decisions. Though the collection of data was competent and conscientious, the criteria of program effectiveness that were applied were intrinsically too fragmentary and soft to result in solid guidance. Indices based on the participants' expressed satisfactions with the training that they received, or their estimates of how much they have used it since their return fall short of the need in many respects, but mainly in that of begging the question. If the purpose of participant training is to accelerate development in the recipient countries, nothing less than an index of tangible contributions to development can serve as an adequate measure of program success. The need is and has been for feedback on training-linked development gains.

In February 1973, AID invited us to submit a proposal for the development of suitable impact assessment procedures; and in April 1973, we began the developmental study that we had proposed and that is the subject of this report. Its implementation followed closely the conceptual framework and plan that were described in the proposal, and that we recapitulate briefly below.

Scope of the Project

As an appropriate perspective for viewing this task and its prognosis, we urged a posture of cautious respect. For the central requirement is disturbingly reminiscent of the classic problem of assessing the impacts of education, with which researchers of many stripes have wrestled for years, each time coming up empty-handed. A phased development strategy with a modest initial investment seemed to us to be the indicated approach.

A sequence of three major steps was projected. The first, and most difficult, was to solve the basic methodological problem of finding indicators of the impact of participant training that fairly reflect the program's contributions to national development aims. What kinds of phenomena should an evaluator look for and count to come up with a valid assessment? Given an answer to this, the next step would be the less complex but nevertheless challenging task of instrumentation, to devise checklists or questionnaires with which reliable data on these phenomena can be collected in an efficient, economical manner. Then, the last step would be an application of the methodology to a "live," operational issue concerning the program's effects, as a final test of the techniques, and as a vehicle for linking the assessment results to decision-making procedures.

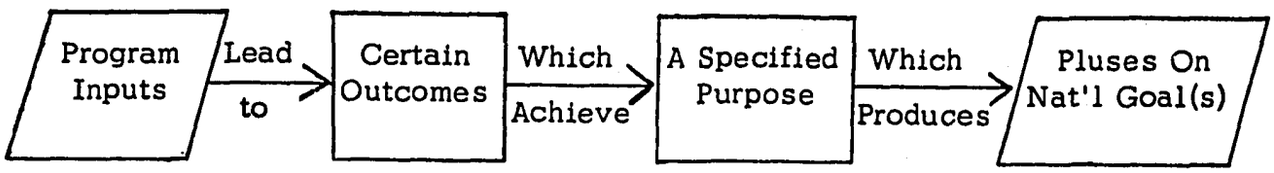
In Phase I, only the first of these steps was to be attempted. Finding suitable indicators, and assembling them into a prototype assessment procedure were the key project objectives.

The Central Methodological Problem

To pin-point the problem that made this undertaking so difficult and that the Phase I research had to crack as its central objective, the proposal discussed at some length the relationship between the input of participant

training and the eventual output of national development gains. The "Logical Framework" that AID has adopted for analyzing such links afforded a useful beginning.

In the Logical Framework, the input-impact relationship is displayed as a sequence of four kinds of events, as follows:



The "rationale" of any type of technical assistance activity can be conveniently displayed in this manner, as a guide to planning or impact assessment. In the case of participant training,

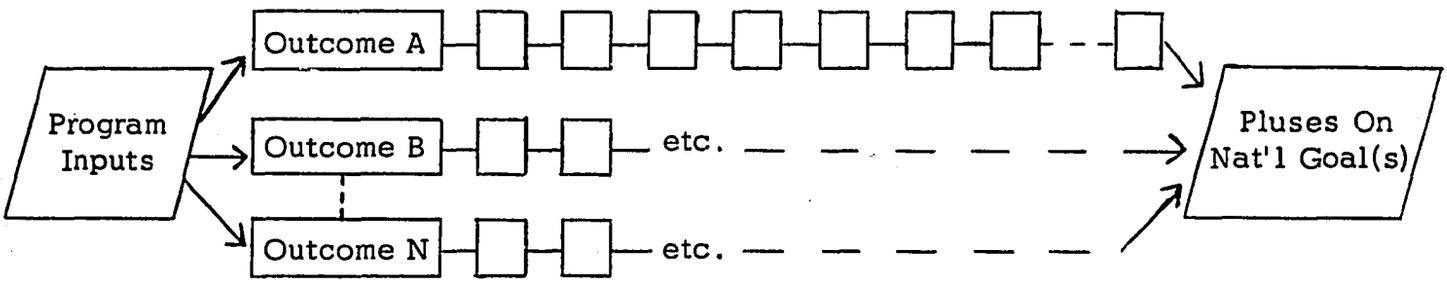
- the inputs might be defined as the learning experiences that are provided to the trainee;
- the outcomes as the new performance capabilities that he acquires;
- the purpose as the greater effectiveness of the operations to which the participant applies these new capabilities when he returns; and
- the increment in national goals as the ultimate payoffs of these more effective operations on the development targets that they directly affect.

In this way, the link between participant training and technical assistance objectives is made explicit.

For general analytic purposes, this simple schematic is sufficient. But, for the derivation of specific indicators of impact that one might use in an actual field assessment, it is too abbreviated a representation. For this

purpose, two of the complexities that are implicit in the Logical Framework but not explicitly shown must be surfaced and added to the schematic.

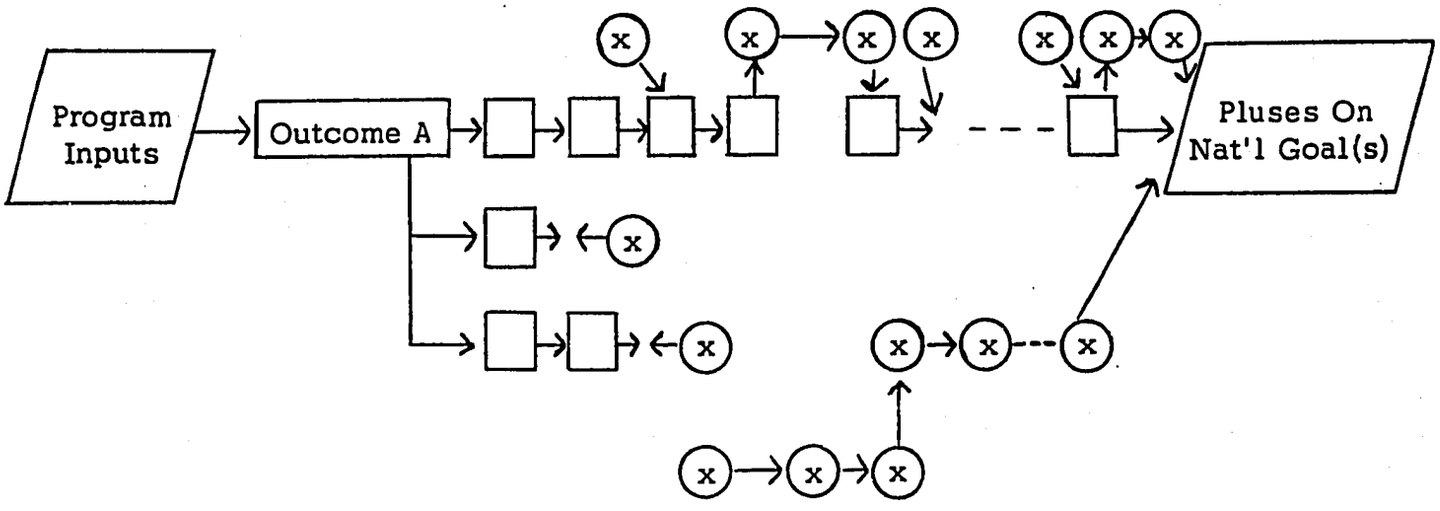
The first of these complexities is that the flow from the achievement of the immediate outcomes to their eventual impact on national goals normally consists of a linked chain of many, many specific events. It is conceivable, perhaps, that a trainee in geology could come back to his country and promptly discover unknown oil deposits that change the economy overnight. But, more typically, an action he takes on the basis of his newly acquired skills will trigger a change in some procedure that will in turn have some modest effect that will in turn cause another person to change his behavior that will in turn...etc., etc., etc. A more accurate representation of the impact system would look as follows:



Actually, a separate sequence of this type would be triggered each time the participant applies one of his newly acquired skills, but this further complication can be deferred. The important point here is that impact generally proceeds in many small steps.

The second of the complexities that must be considered is that the participant is obviously not the only player who gets into the act. Other elements (people, laws, customs, etc.) interact with the things that he

does or tries to do. And these other elements can transmit, increase, decrease, or block the impact of the participant's action. Fitting these other inputs into the schematic (as circles) results in a further elaboration, as follows:



The first row represents a participant action that eventually resulted in impact; the second an action that proved a dead-end; the third an action that might have had a certain impact, but another input was in fact the agent that actually produced it.

The upshot of these complexities is to create a tug-of-war between the two basic requirements that have to be met in impact assessment, of not only identifying the <u>contributions</u> that have been made to national goals, but of also <u>attributing</u> these contributions to a specified input, such as participant training. This tug-of-war may be seen in the above schematic, in that

- the further one moves to the <u>right</u> of the chain in picking the outcomes that he will count as indicators of the impact

that has been achieved, the more confident he can be that these indicators are valid, showing "real" contributions to national goals, but the less confident he can be that they are truly attributable to participant training, rather than to the many other inputs that have also gotten into the act by this late stage in the chain; whereas

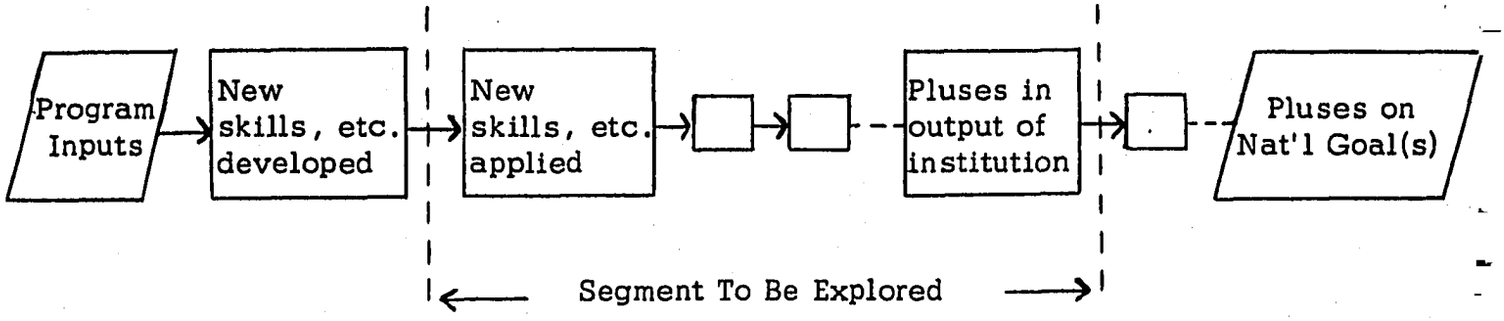
- the closer one stays to the left of the chain in picking the outcomes that he will assess, the more assuredly he can document these as the consequences of participant training, but the less confidently he can claim impact on national goals that still lie far off in the future, with many other relevant inputs yet to occur and intrude in the chain.

If the checklist used for assessment counts an event such as "participant introduced an evaluation questionnaire into the courses that he is teaching of the type used in the training workshop that he attended" as an indicator of impact, for example, there is no problem in attributing this outcome to his training. But there is a real problem in claiming tangible impact in support of any national goal. If, on the other hand, the indicators are limited to such ultimate outcomes as "documented increases in agricultural productivity," there can be no question of validity, but great difficulty must be anticipated in trying to attribute part or all of this change to a specified participant course. How does one find or develop indicators that effectively straddle this contribution-attribution dilemma?

The Planned Approach

The approach that we proposed to take to this problem began with two basic, strategic decisions. The first of these was that we would concentrate the search for suitable indicators within a fixed segment of the long chain of events that links the training inputs to the ultimate goal of national development gains. The earliest event that we would consider as a potential indicator for purposes of assessment would be an application of a skill or attribute the participant acquired in training to the actual operations

of the institution to which he is presently assigned. The most distal event that we would consider as a potential indicator would be a visible change in the output of this institution, in terms of the quality of the services or products that it provides. In schematic form, the following segment would be the one on which we would focus our search:



Events to the right of this segment, we felt, would be too far removed from participant training to permit credible attribution, while events to the left would be too tentative to be counted as contributions. As a rock-bottom minimum, the returned participant would have at least to have applied the presumed training outcome to the improvement of internal job operations.

The second strategic decision was that we would look for indicators in this segment with a search process precisely opposite to that used in earlier participant follow-up studies. Instead of beginning with the outcomes of the training program and looking for their effects in or on the institution, we would begin with the identification of visible improvements or achievements, and then trace these "backward" to their antecedents, if any, in the training experiences the participant had received. Our first cast of the net would try to surface any and all events that might prove serviceable as indicators for assessment, without reference to their relationships to participant training. Then, we would screen this large population of potential candidates further, to identify those that do seem to be linked to specifiable outcomes of training.

There were two major reasons for this reversal of the more conventional procedure. The first was that we feared that a line of inquiry which begins with training outcomes would bias the results toward the application of specific knowledge and skills, and other "normal" curriculum content, and ignore the more subtle or even incidental outcomes of participant training that analyses which begin with unselected achievements well might reveal. The second, related reason was that we considered the task of relating a specific achievement to its probable antecedents a more reasonable one to ask of the people from whom we would be collecting the data than the less structured task of recalling events to fit specified antecedents.

In accordance with these decisions, we proposed a three-step process for developing the indicators required. Step 1 would be to obtain from a sample of former participants and their supervisors reports of specific improvements that have occurred since the participant's return in the output of the institution or in its operations. Step 2 would be to seek from the same respondents such evidence as they might be able to cite concerning the relationships, if any, of these achievements to experiences during participant training. Step 3 would be to deduce from these data the types of achievements that most effectively straddle the contribution-attribution dilemma, and to fashion these into prototype indicators for impact assessment.

Because of the many contingencies that could affect this general plan, we proposed that the data be collected in two "waves" in two different countries, with sufficient time in-between to permit methodological adjustments. As appropriate locations, we suggested Thailand and Ghana, and both countries generously agreed to host and cooperate with the research.

Anticipated Outcomes

Because of the great variety of the activities that are subsumed under the participant training program, we did not consider it feasible to try to design a single, fixed checklist or questionnaire that could be used to assess the impact of each activity in every sector in all developing countries. Rather, the end-product that we envisioned would consist of

1) A checklist or inventory of the tangible impacts that can serve as suitable indicators of the contributions of a participant training activity to the development goals of the country; and

2) A step-by-step "program" for the field evaluator to use in selecting appropriate indicators from this master list, and adapting them to the specifics of the country, institution, and technical specialties in which the participants to be surveyed are working.

Though a single subset of indicators well might apply to a group of similarly-oriented training programs, or be used with only minor modifications across different countries, it seemed more realistic to aim for a clear-cut procedure for generating suitable indicators whenever a specific need for assessment arises than to count on the discovery of globally applicable universals. The procedure for adapting the master list to local conditions would have to be sufficiently straightforward and structured, however, to permit use by local evaluators who have not had specialized measurement training.

The major product of Phase I was to be the master list of indicators, as noted in the preceding discussions. Detailed procedures for applying them in practice would be developed in the next phase of instrumentation, provided that this initial task could indeed be accomplished.

II: COLLECTION OF DATA

The Study in Ghana

In accordance with the basic study design, the first stage of the data collection process concentrated on the contribution part of the problem. The two major objectives of the survey in Ghana were

1) To devise a data collection procedure that is efficient and effective in cataloging tangible improvements in the output or operations of the institutions to which returned participants have been assigned, and

2) To apply this procedure to a sufficiently large sample of participants and institutions to identify the kinds of improvements that are most likely to occur and be noted.

The likelihood of occurrence was a highly important consideration, because events that occur infrequently or seldom are poor indicators to look for when carrying out an impact assessment.

As a third, subsidiary objective, the Ghana study also was to provide some preliminary insights into the attribution characteristics of the achievements compiled. This was to be done by including a group of non-participants in the sample surveyed at each institution, so as to provide a "norm" for picking out the achievements of the former participants that are distinctive, and might therefore reflect the impact of training.

Objective 1: Data Collection Procedure. Three somewhat different approaches to the collection of data on tangible achievements were tried. Method A consisted of asking the interviewee first to enumerate the major institutional objectives, then to describe any significant changes in the attainment of these objectives that had occurred within the past six months

or year, and then to describe the specific ways, if any, in which the former participant helped to effect each change. Method B consisted of asking the interviewee first to specify the directions in which the institution was most eager to expand its capabilities and resources, then to describe examples of progress that had been made in the past six months or year in these desired directions, and then to describe the specific ways, if any, in which the former participant contributed to each of the examples cited. Method C consisted of asking the interviewee to report specific examples of contributions the former participant has made since his return to the attainment of the institution's objectives. The intent was to elicit data at all points of the sequence of successive impact events, since we could not pre-judge the point at which the most suitable indicators were to be found.

Only the third of these methods proved to be fully effective, however. Methods A and B led to interesting, even revealing discussions, but not to sufficiently concrete events, perhaps because of the abstractness of institutional objectives and directions. Method C produced events of the type sought immediately and directly; and, interestingly, provided data along the full range of impact, from participant achievements to institutional outputs and even beyond. Accordingly, the other two approaches were dropped, and Method C was the only procedure used for all subsequent data collection.

A related finding was that the supervisors of the former participants could provide overall evaluations of their performance, but could not provide nearly so much detail on specific events in which the participants were involved as could the participants themselves. This was probably because of the deliberate effort we made to concentrate on participants in senior positions, where the opportunities for impact are likely to arise more often, but where close supervision is rare. The former participants were the better source of specific events, and the original plan of interviewing every participant's immediate supervisor was changed to interviews of only a sample.

Thus, the procedure that proved most effective in generating potential indicators was the simple one of interviewing returned participants, and collecting "critical incidents" illustrative of their own, major achievements. Most of the data collected in Ghana (and all of the data later collected in Thailand) were obtained by this technique.

Objective 2: Catalog of Potential Indicators. Reports of discrete, specific achievements were obtained from a sample of 100 interviewees, at the levels of senior and principal officer or higher. Each interviewee was encouraged to report and describe a number of events in which he participated or that he observed.

Reports that did not describe a specific event or that did not meet the minimum criteria of representing a tangible improvement were dropped from the data base. This left a total of 292 useable reports as the major outcome of the study in Ghana. Table 1 shows the distribution of these reports by sector and source.

As elaborated in a later discussion, highly similar kinds of events were often reported by individuals in different jobs and institutions, so that this large number of discrete events could readily be grouped into a much smaller set of different types of achievements. This reduced set constituted the catalog of potential indicators that was the key objective of the Ghana research.

Objective 3: Attributions to Training. The comparison of achievements by former participants and non-participants that had been planned could not be implemented in Ghana. Only a few officials at comparable positions had not had participant training or comparable overseas training under other auspices; and, though this sample was interviewed, the number of cases was too small to permit the comparative analysis that had been intended.

Table 1:

Distribution of Ghana Reports by Source

Sector*	No. Interviewed	No. of Reports
Agriculture	26	102
Health	16	27
Research	24	63
Revenue	8	24
Transportation	14	53
Utilities	12	23
Total	100	292

* Agriculture includes Ministry of Agriculture, Agriculture Development Bank, Cocoa Marketing Board, and Grains Development Board. Health includes Ministry of Health and National Family Planning Program. Research includes Council for Scientific and Industrial Research, Ghana Academy of Sciences, and Bureau of Standards. Revenue includes Central Revenue Department. Transportation includes Ghana Civil Aviation Department. Utilities includes Ghana Water and Sewerage Corporation.

Except for such information as the interviewees volunteered about training antecedents, nothing was learned about the attribution characteristics of the potential indicators that had been assembled.

Overall, the Ghana study demonstrated that returned participants effect a variety of improvements in the output or operations of their institutions, that these impacts can be cataloged by a simple interviewing technique, and that the kinds of impacts that emerge from these data occur with sufficient frequency to be potentially useful indicators for impact assessment. The outcomes, in brief, demonstrated the feasibility of the basic idea.

The Study in Thailand

The design of the Thailand research was based directly on the findings in Ghana. Its two major objectives were

1) To assemble additional reports of participant achievements, so as to amplify and enrich the set of potential indicators developed in Ghana, and to check the generalizeability of these indicators to other cultural settings, and

2) To assemble the best possible information about the antecedents of the achievements reported, to determine which of them reasonably could be attributed to participant training.

In view of the limited information that had at that stage been assembled about the attribution problem, the latter was the crucial objective.

Three types of questions were asked each interviewee. The first were totally unstructured questions about his specific achievements since returning from training. In these questions, great care was taken to avoid any suggestion, explicit or implicit, about the type of achievement to be

reported, so that the results would be entirely spontaneous, and serve as a check on the completeness and generalizeability of the findings in Ghana. The second set of questions asked for achievements, if any, in a number of specified areas that reflected the kinds of impacts most often reported in Ghana. The purpose of these questions was to insure that adequate attribution data would be collected on these categories of impacts, whether or not they were reported spontaneously also in Thailand. The third set of questions asked for attribution comments on each of the achievements the participant had reported. If he indicated that his participant training was directly related to the event, he was asked to substantiate his reasons for this belief.

Objective 1: Elaboration of Potential Indicators. A total of 200 additional reports of specific participant achievements was assembled from 34 interviewees. This was approximately double the rate of reports per interviewee that had been achieved in Ghana, and was no doubt attributable to the additional "triggers" to recall that the structured questions derived from the Ghana findings provided. Table 2 shows the distribution of these reports by source.

The kinds of impacts reported confirmed both the comprehensiveness and the generalizeability of the catalog of potential indicators developed in Ghana. The Thailand reports produced no indicators that did not fit within one of the categories derived from the Ghana data, and all but one of the Ghana categories reappeared in the Thailand sample. This suggested that the catalog was reasonably complete, and that further data collection was not likely to expand it.

Adding the Thailand reports to those collected in Ghana did much to sharpen the categorization, however. With a combined sample of 500 reports, the nature of the potential indicators could be delineated much more precisely,

Table 2:

Distribution of Thailand Reports by Source

Sector*	No. Interviewed	No. of Reports
Agriculture		
--Administration	4	29
--Research	5	34
Health	4	29
Infrastructure	8	46
National Planning	9	44
Transportation	4	18
Total	34	200

* Agriculture includes Ministry of Agriculture and Cooperatives, Northeast Agriculture Research Center. Health includes Ministry of Public Health, Mahidol University, Thammasat University. Infrastructure includes Office of Accelerated Rural Development. National Planning includes National Economic and Social Development Bureau, National Statistical Office, Department of Technical and Economic Cooperation. Transportation includes Department of Aviation.

and the initial catalog was modified in a number of important respects. The version presented in the following section (and all of the subsidiary analyses) are based on the composite findings of the Ghana and Thailand research.

Objective 2: Attribution to Participant Training. The information on attribution collected in Thailand represented a significant addition to the data base. For, unlike the fragmentary attribution comments assembled in Ghana, each of the achievements reported in Thailand was accompanied by an explicit statement of its probable antecedents.

Two major factors emerged from these data. The first is that attribution cannot be viewed as a yes-or-no proposition, but represents a continuum of more and less credible propositions. At one end of this continuum, impacts occur which are clearly and unequivocally the results of participant training; at the other end, impacts occur which clearly and unequivocally were not influenced by training at all. Between these extremes, there are gradations so subtle that the participant himself cannot make dispassionate, believable judgments. The second factor was that a variety of experiences during the participant's stay in the United States lead to impacts as pronounced as those attributable to his formal courses, and that these program outcomes also must be encompassed in impact assessments. Both of these factors will be elaborated in the later discussions.

Overall, the Thailand research confirmed the generalizeability of the data collected in Ghana, permitted a more precise definition of the indicators that can be applied in assessments, and established the linkages between achieved impacts and experiences during participant training. In conjunction with the Ghana findings, they provided the raw data for the development of prototype assessment procedures.

III: CATALOG OF PARTICIPANT ACHIEVEMENTS

Each of the 492 reports collected in Ghana and Thailand described a certain segment of the impact sequence that we represented schematically in an earlier Section as a chain of discrete, successive events. Some focused on outcomes to the far right of the chain, at or near the point of impact on national goals. Some reported more intermediate accomplishments in improving the output, capacity, or operations of the institution in which the former participant works. Some were reasonably broad segments, extending from the point of impact all the way back to participant training; some revealed only a few links of the chain. Each showed a slice of one of the sequences whereby impacts occur, and the main task in the analysis of the data was to sort these slices in accordance with the sequence from which each was snipped, and then to fit the pieces together.

As a first step, we sorted the reports on the basis of the nature of the impact that was the end-product of the participant's input or action. In each report, we identified the final event of the segment described; and then we grouped the reports that ended in similar types of achievements. We obtained 20 separate groupings, as cataloged in Table 3.

As in any process of categorization, the number of groupings derived could have been larger or smaller than the 20 that we developed, depending on the level of specificity that is applied to the grouping procedure. For assessment purposes, great specificity offers the advantages of precision in formulating indicators that faithfully reflect not only the thrust but only the nuances of the reports, while more generality offers the advantages of operational utility in producing indicators that are applicable to a large number of different situations. Striking the appropriate balance between specificity and generality is always a matter of judgment; these 20 groupings represent our judgment of the level of specificity that will lead to useful indicators for impact assessment.

Table 3:

Catalog of Types of Participant Achievements

	No. of Reports
IMPACT ON DEVELOPMENT TARGETS	
1: Influenced development strategies or emphases, or a specific investment decision.	19
2: Introduced a new agricultural, industrial, or commercial enterprise in the country.	10
3: Developed a local capability for an activity formerly dependent on external resources.	10
4: Discovered a solution or a more promising approach to a significant development problem.	37
5: Stimulated the more widespread adoption of a preferred practice or other, desired public response.	27
IMPACT ON INSTITUTIONAL OUTPUTS	
6: Initiated a new service or program.	39
7: Raised standards of products or services provided.	42
8: Changed rules or procedures to be more responsive to needs of clients.	21
9: Avoided disruption of service by timely action, despite difficulties or risk.	25
10: Performed task that required special effort or skill.	25
11: Improved or expanded dissemination programs, techniques.	29

Table 3 (continued):

Catalog of Types of Participant Achievements

	No. of Reports
IMPACT ON OUTSIDE SUPPORTS	
12: Expanded institution's authority, status, or charter.	12
13: Developed more effective working relationships with local agencies or sources of external aid.	12
IMPACT ON INTERNAL OPERATIONS	
14: Introduced or expanded the use of analytic, data-based management aids.	30
15: Introduced cost- or time-saving measures, ideas.	21
16: Imposed tighter structure or controls on staff or vendor performance.	37
17: Improved the allocation or organization of responsibilities and functions.	23
18: Upgraded the caliber, capabilities, or morale of the staff.	48
19: Upgraded physical facilities or equipment.	17
20: Improved record-keeping or information retrieval systems.	8
Total Reports	492

The first subset of achievements consists of impacts in which the ultimate development gain is immediately apparent. Each of these five categories goes beyond the improvement of the output of the institution, and is at least one step closer to impact on national goals than the furthest point of the impact sequence that we had thought we could reasonably explore. This subset includes the most "dramatic" achievements.

1) Influenced development strategies or emphases, or a specific investment decision. The achievements of this type that were reported include a few sweeping policy changes, such as the introduction of the metric system and right-hand drive in Ghana; and a variety of specific policy decisions, such as building a new airport, resurrecting a project to construct a nuclear reactor, or changing the mechanisms for marketing agricultural products abroad. There also are reports of actions to promote new policy directions, notably in the areas of ecology and conservation.

2) Introduced a new agricultural, industrial, or commercial enterprise in the country. Examples of this type of achievement include a major investment in shallot farming (with a high rate of return), a new soap manufacturing industry, and the licensing of private charter companies to carry air cargo. This is the only one of the categories reported only in Ghana, perhaps because the sample in Thailand did not include institutions that do this.

3) Developed a local capability for an activity formerly dependent on external resources. These achievements are similar to the preceding, but differ from these in that the emphasis is on saving costs and reducing dependencies rather than initiating new entrepreneurial ventures. Examples include the development of skills in instrument calibration, so that this need no longer be done abroad; the purchase of machinery for producing replacement parts that had been imported; the establishment of a local center for teaching skills for which trainees had been sent overseas. Reports of the increased utilization of existing facilities and specialists so as to phase down the magnitude of external inputs are also included.

4) Discovered a solution or more promising approach to a significant development problem. The majority of the achievements of this type that were reported consist of agricultural innovations: improved hybrids, more effective fertilization compounds or practices, numerous countermeasures to pests and disease. But the reports also cite innovative approaches to broad, national development problems, such as new anti-inflationary measures, or new solutions to improving the economy of impoverished regions. A number of advances in health care are also included.

5) Stimulated the more widespread adoption of a preferred practice or other, desired public response. The reports in this category describe achievements in the participant's role as an "agent of change," particularly in rural locations. The majority of them report improvements in agricultural practices, nutrition, health and sanitation. Other reports describe improvements in manufacturing processes, and still others cite gains in the payment of taxes. In the latter area, the primary technique used to effect the change is that of enforcement; in the other areas, it is one of teaching and demonstration.

The second subset of achievements pertains to improvements in the quality of the institution's products or services, and in their delivery to client populations. The development impact of these improvements is clear, even when not documented explicitly in the reports, and the six categories in this second subset also represent fairly ultimate impacts in the sequence from participant training to national development goals.

6) Introduced a new service or program. Many of the achievements reported in this category consist of the establishment of the "first ever" service of this type in the country. Examples include a unit for poultry research, a new medical curriculum, greatly expanded banking services to include processing and marketing in addition to the provision of loans. Other reports describe expansions of ongoing programs, such as the inclusion of up-to-date market prices in the radio programs for farmers.

7) Raised standards of products or services provided. The reports in this category describe three major types of participant actions. The first is to correct a shortcoming or mistake, ranging from wrong proportions of feed mix to an airport runway that is not constructed to minimum international standards. The second is to raise output specifications, to construct a sturdier building or wider road, or to make more realistic appraisals of needs in granting loans. The third is to do more than the task requires, as a precautionary measure, such as replicating field agricultural research in green-houses not subject to unexpected weather problems, or assigning back-up maintenance personnel to critical air traffic control equipment.

8) Changed rules or procedures to be more responsive to needs of clients. The essential characteristic of these improvements is that the actions taken are not "necessary" to the implementation of the program, but do make its output more convenient or helpful for users. Examples are the introduction of a decentralized distribution system to reduce travel time for the buyers, a change in tax regulations to permit more liberal payment schedules, a more anonymous family planning referral system to safeguard the privacy of the clients.

9) Avoided disruption of service by timely action, despite difficulties or risk. The contributions of the achievements in this category lie in what did not happen, as a result of the participant's intervention. In most of the reports, something goes wrong, such as the late arrival of seed or an unexpected shortage of certain critical items, and the participant figures out some way around it. In others, he cuts the normal red tape to assure timely action.

10) Performed task that required special effort or skill. In these reports, the participant is given a specific assignment, such as preparing sections of the national development plan or designing a new terminal building or forecasting fertilizer demands, and does it competently and/or on time. Only a few of the reports indicate that the participant was the only one at the institution who could have done this, but it is clear in all of them that the institution could not produce this kind of output without specialized manpower resources.

11) Improved or expanded dissemination programs, techniques. This category includes three types of actions. The first is the introduction of a new dissemination program, such as a seminar series, or an outreach "home visitors" program. The second is the application of new kinds of dissemination techniques, such as mass media or visual aids. The third is a special effort on the part of the participant himself to reach wider audiences, such as extending personal invitations in addition to the routine announcements.

The third subset of achievements establishes necessary pre-conditions for improvements in services or expansion of scope. In both of these categories, the participant increases the potential of the institution by drawing on other agencies for additional support or resources. Such accomplishments are one step further removed from national development goals than the preceding achievements, but nevertheless reflect necessary and therefore important contributions.

12) Expanded institution's authority, status, or charter. The most frequent type of report in this category describes a successful attempt by the participant to persuade government to upgrade the institutional status of his activity, or to split it off as a separate organization. Other reports describe extensions of institutional authority, by gaining permission to expand the base of the program, such as the introduction of family planning courses in nurse training, or by gaining additional enforcement power through new rules or legislation.

13) Developed more effective working relationships with local agencies or sources of external aid. This category includes two major kinds of actions. The first is gaining additional support or negotiating better terms with external assistance agencies, including AID. The second results in partnerships or more frequent interactions with other local agencies, or the pooling of resources.

The final subset of achievements effect improvements in the institution's internal operations. The seven categories of impact in this set are scattered over a large portion of the impact sequence, from reasonably ultimate gains, such as cost-reduction, to improvements of institutional resources many steps removed from development goals. But even the latter of these emerge from the data as playing a significant development role, as elaborated at the end of this Section.

14) Introduced or expanded the use of analytic, data-based management aids. Most of the reports in this category describe the use of empirical, objective data in making decisions about maintenance practices, inventories, personnel, or other management actions. Others describe the introduction of new feedback systems, such as pre-implementation surveys of local conditions, a requirement for detailed progress reports, or the collection of pre-project baseline data to permit later impact assessments. The use of data as an aid to planning or decision-making is the central thrust of these reports.

15) Introduced cost- or time-saving measures, ideas. Most of the reports in this category describe steps that the participant takes to reduce waste, ranging from the salvage of re-useable materials to the elimination of agricultural projects in areas that physically cannot sustain them. Others describe fairly imaginative program improvements, such as targeting vaccinations on the age-groups in which the disease is most likely to occur, or replacing overqualified technical personnel with more junior people who can perform the tasks equally well.

16) Imposed tighter structure or controls on staff or vendor performance. The reports in this category include three major types of actions. The first is the introduction of control mechanisms, such as time-cards, to promote more diligent and honest performance. The second is the adoption of closer monitoring practices, through personal inspection or systematic quality checks. The third is the enforcement of standards through disciplinary measures and related techniques.

17) Improved the allocation or organization of responsibilities and functions. The majority of the reports in this category describe structural changes, to eliminate duplication, or to amalgamate activities that depend on frequent interactions. Another sizeable subgroup describes changes that allocate responsibilities so clearly that each unit is absolutely accountable for progress and shortfalls in a fixed, specified set of institutional objectives.

18) Upgraded the caliber, capabilities, or morale or the staff. This category includes three types of improvements. The most frequent is the expansion or improvement of internal training programs, to upgrade the skills of the staff. The next most frequent are changes in the conditions of service, to provide greater rewards or reduce dissatisfactions. The third consists of changes in the criteria used for the selection of personnel, or for their placement into specific job assignments.

19) Upgraded physical facilities or equipment. The reports in this category are concerned mainly with the procurement of better equipment, or the more effective utilization of equipment already on hand. Improvements in the institution's physical plant are also included.

20) Improved record-keeping or information retrieval systems. The improvements in record-keeping systems occur in operating agencies, and pertain particularly to the provisions for follow-up of items still pending. Information-retrieval improvements are reported in research institutions and others that depend on library resources.

These twenty categories range from highly dramatic impacts to achievements that do no more than set the stage for impact, as earlier noted. But the data suggest that the latter should not be discounted as indicators of tangible development gains. One of the reports in Category 20 which in and of itself appears to have at best marginal implications for impact, for example, tells of the participant who revised the classification

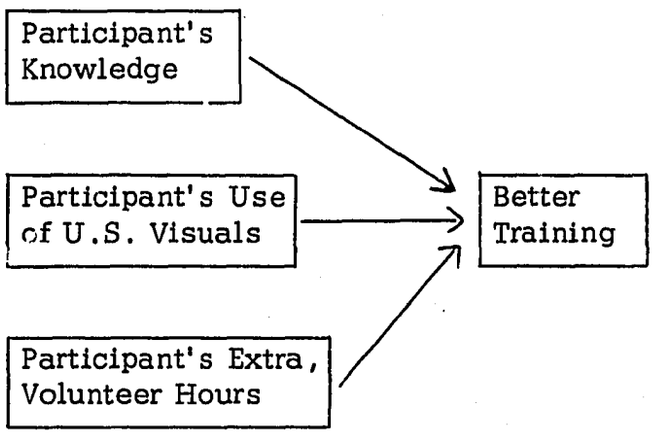
system used in the institution's library, and reduced the problems that the staff had experienced in locating references relevant to their research. Yet, when this report is coupled with that of another participant who changed a research project on feed substitutes from dry to fresh cassava because he knew from the research literature that the former had already been done, the potential importance of the earlier report is seen more clearly. And when this second report is coupled with yet another of those assembled, in which a participant in fact succeeded in developing an effective feed substitute for chickens, the link between research libraries and national development goals is quite clearly established. Such linkages may be found among all levels of the above categorization, and persuade us that all 20 of the reported achievements reasonably can be considered to be relevant, direct development gains.

The identification of these 20 categories provided an adequate answer to the contribution half of the contribution-attribution dilemma. They represent important, presumably frequent impacts that former participants can and do make, and that therefore may have utility as indicators for follow-up assessments. But, as the end-points of the segments reported, the above categories provide no information about the antecedents of these results, establish no links to participant training. To resolve the attribution part of the problem, the earlier links of the segments are also important, and we turn to these in the following Section.

IV: IMPACT-PRODUCING CHARACTERISTICS

As the second step of the analysis, we further divided the above 20 categories of impacts into the distinct sequences of events that can produce them. For, as in the proverbial itineraries to Rome, the data revealed that there are different paths to each achievement; and that the particular path the participant travels can be a critical factor in the attribution of the outcome to training.

In Category 18, for example, the achievement of producing a better staff training program can be (and actually was) achieved in all three of the following ways:



Though the outcome is the same, the three sequences differ, and it is important to treat them as different in the development of indicators for impact assessment. The reason for this can be seen most clearly by looking ahead to the task of the field evaluator who will be collecting the data.

If the field evaluator is asked to look simply for improvements in staff training programs (i.e., if the above sequences are treated as one rather than three), he will presumably assemble reports of all three types, as did we in the present study. Of these, the most useful to him will be

the reports based on the middle sequence above, since in these the link to experiences in the U.S. is explicit, and he need check no further to document these as impacts clearly attributable to participant training. The next most useful to him will be the reports based on the first sequence above, since he will usually be able to establish that the participant acquired the technical knowledge as the result of training. But he will have to probe further to establish this link. Least useful to him will be reports based on the third sequence above, since these as often as not are likely to show the impact of long-standing personal characteristics rather than participant training, and because identifying those of the set that properly are attributable to participant training would in any event be a most difficult task. Reports of this third type will contain less wheat than chaff.

Such inefficiency in data collection is tolerable, indeed necessary in exploratory research. But it is quite inappropriate in an operational assessment procedure. To be at all efficient, the indicators provided the field evaluator should "zero in" on sequences likely to be productive, like the first two of the above, avoid the high rate of wastage inherent in the third. Indicators based solely on the participant's achievement, such as

- an improvement the participant effected in a local staff training program

are inefficient; indicators that specify not only the result but also the sequence that produced it, such as

- the use of U.S. training materials to improve a local staff training program

provide a much higher proportion of useable data, and are the types of indicators required.

To identify the various paths the participants took to bring about these 20 kinds of achievements, we re-examined the reports from this point

of view. We found that 464 of them specified the path as well as the result, and from each of these extracted the "impact-producing characteristic," which we defined as the specific skill, attitude, or other resource that the participant brought to the situation to effect the impact reported. Then, we categorized the reports a second time, in accordance with these characteristics, and obtained fourteen groupings, listed in Table 4. The five headings under which they are listed are components of the AID Institution-Building Model (popularly known as the Esman Model), which affords a convenient framework for organizing characteristics that lead to achievements.

> Element A: Technical Sophistication. This element was derived from events in which the outcome was mainly attributable to the participant's mastery of theories, techniques, or facts in his field of specialization. In most (but not all) of the reports in which it appeared, formal schooling or "book learning" was the critical factor.
>
> Element B: Awareness of Other Possibilities. This element was derived from events in which the outcome was mainly attributable to the participant's knowledge of or familiarity with additional ways of achieving desired objectives. His contribution lay in a new approach or broadened vistas.
>
> Element C: Appreciation of Inputs Required. This element was derived from events in which the outcome was mainly attributable to the participant's decision to invest additional energy or resources in a certain job objective. It was his appreciation of "what the job takes" that was the critical factor.
>
> Element D: Acceptance of New Objectives. This element was derived from events in which the outcome was mainly attributable to the new organizational values the participant promoted. Most of these values can be characterized as "social responsibility," in such areas as environmental protection or concern for the well-being of clients.
>
> Element E: Commitment to Principles and Convictions. This element was derived from events in which the outcome was mainly attributable to the participant's spirited defense of his convictions. His determination to do what is "right" was the critical factor.

Table 4:

Impact-Producing Characteristics

	No. of Reports
PROGRAM	
A: Technical capabilities, sophistication	102
B: Awareness of other possibilities, approaches	25
C: Appreciation of nature and magnitude of inputs required	69
DOCTRINE	
D: Acceptance of new or expanded objectives	24
E: Commitment to principles, convictions	19
LEADERSHIP	
F: Willingness to take responsibility, act	20
G: Data orientation	37
H: Goal orientation	39
RESOURCE MANAGEMENT	
I: Efficiency orientation	38
J: Skill in human relations	19
K: Familiarity with equipment	15
L: Familiarity with workable operating routines	22
LINKAGES	
M: Access to external sources of information or help	26
N: Credibility and credentials	11
Total Reports	464

Element F: Willingness to Take Responsibility. This element was derived from events in which the outcome was mainly attributable to the participant's willingness to stick his neck out and make a decision for better or worse. He was influenced more by the need for decision than by the limits on his authority or the possible risks.

Element G: Data Orientation. This element was derived from events in which the outcome was mainly attributable to the participant's use of data as the basis for planning and decisions. His appreciation of the utility of solid, empirical data was the critical factor.

Element H: Goal Orientation. This element was derived from events in which the outcome was mainly attributable to the participant's determination to get the job done, no matter what. Resourcefulness, disregard for conventions, and willingness to put in extra hours were the characteristics that emerged most often.

Element I: Efficiency Orientation. This element was derived from events in which the outcome was mainly attributable to the participant's concern for efficiency, and alertness to opportunities for savings. His actions were a function not of specialized skills, but of concern for and attention to efficiency as a key job objective.

Element J: Skill in Human Relations. This element was derived from events in which the outcome was mainly attributable to the participant's use of clever psychology, or to his understanding of the rewards and incentives that promote effective performance. The explicit attention he gave to the "human equation" was the critical factor.

Element K: Familiarity with Equipment. This element was derived from events in which the outcome was mainly attributable to the participant's competence in evaluating and using equipment. In a number of reports, his appreciation of high-quality equipment was the deciding factor.

Element L: Familiarity with Workable Operating Routines. This element was derived from events in which the outcome was mainly attributable to the introduction of practices of known merit that the participant "borrowed" from other operations or settings. As a result of his familiarity with the practices of established institutions, he was able to reduce or eliminate the trial-and-error that the development of effective routines for a new operation or institution normally requires.

Element M: Access to External Sources. This element was derived from events in which the outcome was mainly dependent on the participant's knowledge of or personal relationships with sources of information or help. In this element, it is not what the participant knows so much as whom he knows that is important.

Element N: Credibility and Credentials. This element was derived from events in which the outcome was mainly attributable to the participant's status in his field. He was able to accomplish his objectives primarily as the result of prestige.

If each of these fourteen characteristics could produce each of the 20 types of achievements, there would be a total of 280 separate sequences for which indicators could be developed. But many of these theoretically conceivable sequences are too remote or improbable to be useful for impact assessment. In the present data base, 111 of the 280 possible sequences were reported, 70 of them two times or more. These 70 sequences were prime candidates as appropriate foci for impact assessment. But one final question had to be answered: Which of them typically are initiated by an experience provided by participant training?

V: ATTRIBUTIONS TO PARTICIPANT TRAINING

Throughout the preceding discussions, we used the term "participant" to refer to the individual who achieved the impact reported, whether he had in fact had participant training or not. This was convenient, and appropriate to the development of indicators for impact assessment. For any impact that a former participant can produce is a potentially useful indicator that should be considered. But, to evaluate the effects of participant training that the data in fact support, we had to be more precise. For the following analysis, we considered an individual to have had "participant training"

1) if he had received training in the United States, under any auspices whatsoever, or

2) if his overseas training in a country other than the United States was limited to presumably standard degree courses at the university level.

There was no reason to suppose that the impact of training would be different when AID rather than another agency provided the funds, or when a Ph.D. was awarded by London University rather than Harvard. Such fine distinctions would have discarded data for no sensible reason. But when an individual reported no overseas training, or training in another country that consisted of experiences other than presumably standard university courses, he was considered not to have had participant training.

By this criterion, a total of 74 reports described non-participant impacts. These reports were regarded for purposes of this analysis as showing no possible attribution. Though there was nothing in these reports to suggest that these kinds of impacts could never be the result of participant training, the actual antecedents lay in other factors in these particular cases.

An additional 64 reports had to be dropped from the data base for this analysis, on the grounds of insufficient information. The vast

majority of these were reports assembled in the Ghana study, in which the respondents had not been asked to provide information on antecedents. This left a total of 354 reports that described achievements by individuals who had had participant training, and that permitted reasonable attribution decisions.

On the basis of the attribution information contained in each of these reports, they were classified into five groups, representing decreasing attributability to participant training. The criteria for this classification were as follows:

An achievement was judged to have reasonably clear-cut attributability if it was based on either

- the application of a specific technique, theory, or fact described explicitly in the report, and attributed to a specific, named course;
- the imitation or adaptation of a practice observed in the U.S., and credited by the respondent as having served as the model that prompted this change;
- the use of a (personal or published) source of information or product from the United States with which the participant became familiar during his training;
- skilled performance in an activity in which the participant had actual, practical experience in the United States that he credits for this achievement;
- the application of non-technical skills (such as facility in English) that the participant acquired as an incidental by-product of his stay in the United States;
- the use of the prestige or status that accrued to the participant from the credentials he acquired in the United States (such as the opportunity to participate in decisions from which he was excluded prior to training); or

- a participant behavior markedly different from his behavior prior to training, as reported by an observer who worked with him both before and after training.

Each of these conditions was thought to provide sufficiently credible evidence of a direct link to participant training to permit confident attribution.

An achievement was judged to be probably attributable to participant training if the participant said that it was and

- documented this statement by referring to the broad technical background that he acquired rather than to a specific course, or to the adoption of a general U.S. work style or ethic rather than to the transfer of a specific practice or model;

or when the respondent made no attribution statement whatever but

- the timing of the event as an occurrence that immediately followed the participant's return suggested that the training experience was the most logical stimulus for this action, or

- the nature of the achievement itself indicated that an advanced skill or technique had been applied, or that a standard U.S. practice had been adopted.

When one of these conditions applied, there was presumptive evidence for attributing the impact to participant training, but the link was not quite so convincing as in the preceding set.

An achievement was judged to be a possible outcome of participant training when the participant said that it was but provided no supporting evidence, and the impact-producing characteristic was one on which self-reports seldom provide sufficiently reliable data. This was the case when

- the participant claimed greater self-confidence as the result of his training, and attributed his achievement to such poise or assurance; or

- when the participant claimed a change in attitude or values as the result of his training, and attributed his achievement to such attitudinal or motivational changes.

We did not for a moment doubt that such changes can and do occur as important outcomes of participant training. But without confirming evidence by a dispassionate outside observer, we thought it premature to regard these links as established.

An achievement was judged to be an at best doubtful outcome of participant training when the respondent made no statement of attribution, and the nature of the action itself was likely to be the result of factors other than training. This was the case when

- the action depended on a personal approach or work style that could be influenced by participant training, but is more frequently a long-established individual characteristic, such as imposing close supervision; or when

- the achievement was the result of a clever idea that required no special technical knowledge, did not appear to be patterned on outside practices or models, and could have occurred as readily to anyone else.

Again, any one of these events could have been shaped or influenced by participant training. But, in the absence of data, it seemed best to regard them as doubtful.

An achievement was judged to be unrelated to training when evidence in support of this conclusion was provided. This was the case

- when the respondent cited a factor other than participant training as the essential background or prerequisite to the achievement.

Adopting a practice the participant observed in another local Ministry is an example.

Table 5 shows the distribution of the reports among these five categories and their sub-groupings. It will be seen that nearly 80 percent of the achievements can be attributed to participant training with reasonable assurance. This is hardly surprising, since training is invariably a key factor in skilled job performance, and since the respondents knew that the purpose of the research was a follow-up of participant training (even though we did not ask for training-related achievements in the actual questions). But what is somewhat surprising is that more than half of these confident attributions are based on antecedents other than formal "book learning." The exposure of the participants to American thought and practice emerges from the data as an equally significant antecedent.

This analysis added a "third dimension" to the classification of the reports. At this stage, each had been allocated to

a) one of twenty categories of types of achievements,

b) one of fourteen categories of impact-producing characteristics, and

c) one of five categories of attributability,

representing three "points" of the impact sequence that it described. The reports had in effect been sorted into a three-dimensional matrix of 1400 separate cells.

Table 6 presents these results for the 354 participant reports; and also includes, for comparative purposes, the 66 reports on non-participants

Table 5:

Distribution of Attributions to Training

I: Reasonably clear-cut links to training		186
(a) Specific technique or theory applied	71	
(b) Specific practice or model adopted	73	
(c) U.S. source or product applied	21	
(d) Practical job experience cited	4	
(e) Incidental skill learned	5	
(f) Credentials applied	8	
(g) Before-after changes observed	4	
II: Probable links to training		92
(a) Technical background cited	27	
(b) U.S. work style cited	12	
(c) Timing of the event	5	
(d) Requirement for technical knowledge	31	
(e) Conformity of approach to U.S. standard	17	
III: Possible links to training		33
(a) Claim of increased self-assurance	13	
(b) Claim of attitude change	20	
IV: Doubtful links to training		37
(a) Personal characteristics	26	
(b) Clever ideas	11	
V: No links to training		6
Total Reports		354

for which there was adequate data to permit categorization. For the non-participant reports, the attribution dimension shows which had had no overseas training at all, and which had been trained in countries other than the U.S. Because of its length, Table 6 is presented in the Appendix. An abstract, showing the sequences that emerged as most useful for impact assessment, is presented on the following page, as Table 6a.

Illustrations of the three-step analytic process that has been described are presented in the Appendix. This reproduces a number of the actual reports, and indicates the categories into which each was classified on the three dimensions.

Table 6a:

Combinations Most Frequently Attributable to Participant Training

	A : Tech. Soph.	B : Possibilities	C : Requirements	D : New Goals	E : Convictions	F : Take Resp.	G : Data Orient.	H : Goal Orient.	I : Efficiency	J : Hum. Rel.	K : Equipment	L : Routines	M: Sources	N: Credentials
1: Development Decisions				X										
2: New Enterprises		X												
3: Local Capabilities		X												
4: Discoveries/Solutions	X												X	
5: Public Adoption	X	X	X									X		
6: New Programs	X	X	X											X
7: Higher Standards	X		X								X		X	
8: Client Needs				X										
9: Timely Actions						?		?						
10: Demanding Tasks	X												X	
11: More Dissemination	X	X											X	X
12: Institutional Charter														
13: Outside Relations														
14: Data-Based Aids							X							
15: Cost Savings												X		
16: Tighter Controls	X		X				X					X		
17: Organiz. Structure												X		
18: Better Staff	X		X							?		X	X	
19: Equipment											X			
20: Record-Keeping	?		?								?			

VI: INDICATORS FOR IMPACT ASSESSMENT

On the basis of the data assembled in this research, we can be reasonably confident that the set of 20 participant achievements and the set of fourteen impact-producing characteristics are for all practical purposes complete. Additional data might clarify or sharpen the definitions, but are unlikely to suggest additional categories that should be included. The 280 sequences that have been identified by these data can be considered to represent the total set of sequences that are likely to be useful for impact assessment.

That the available data are adequate to identify all of the sequences in this set that should be specifically looked for in field assessments is doubtful, however. A sample of 350 events is hardly sufficient on absolute grounds to inspire definitive conclusions; the limited numbers and types of institutions we sampled are another important constraint. Unquestionably, there are sequences that do not emerge as significant in these data that would be productive foci for assessing the effects of participant training in other institutions or sectors or countries.

The best we can do at this stage of the research, therefore, is to suggest a set of indicators that emerge as productive for impact assessment, without implying that this set is complete. It is adequate, we believe, for first-order impact assessments that will yield more meaningful results than those of earlier surveys, and that can reasonably be undertaken without waiting for further developmental research. But as part of such practical applications, we also believe that it would be useful to include a number of open-ended questions of the type used in the present research, to provide additional data on sequences about which we cannot yet make confident judgments, and thereby to expand the pool of available indicators for future assessments. Such further "piggy-back" developments are elaborated in the following Section.

The sequences that we can identify as productive on the basis of the data in hand are those pointed up in the tabulations of Table 6, as summarized in Table 6a. In this Section, we shall develop prototype indicators for these sequences, and then suggest ways in which data assembled by the use of these indicators can be aggregated to provide operationally useful assessment results.

General Format

The primary vehicle for field data collection should, in our view, continue to be the interviewing of former participants about their own achievements. We do not rule out the collection of data from supervisors or other observers to supplement and/or verify these reports, and on a number of dimensions specifically include this component. But we have great faith in the basic tenet of interviewing which holds that if the questions pertain to factual occurrences which can be verified (whether the interviewer in fact plans to verify them or not) the responses will almost always be objective and honest. We found in this study that the former participants are by far the best source of information on actual, discrete events; we believe that they also will prove to be trustworthy reporters.

The interview questions would be highly structured, to focus on the impact sequences that the preceding analyses pointed up as relevant and important. And, for each sequence, all three of the "points" considered in the preceding analyses would be established. The field evaluator would pin down the nature of the impact, impact-producing characteristic, and training antecedent for <u>each</u> of the sequences for which the participant can report a verifiable occurrence.

All three of these elements would generally <u>not</u> be included in the first question asked about each sequence, however. For, though it may appear

most efficient to pin-point the information sought very precisely with such questions as

- Have you had occasion to achieve Impact Type X through Characteristic Y which you developed as a result of Training Experience Z?

this format is typically too confining to serve as an effective "trigger" to the respondent's recall. A more effective approach is to begin with a broader question, that specifies only one or two of the important dimensions, and then, having stimulated the recall of a potentially relevant occurrence, to pin down the others with follow-up questions. In general, questions such as

- Have you had occasion to use Characteristic Y to achieve Impact X? or

- Have you had occasion to use Training Experience Z to achieve Impact X?

followed up with a probing question on the remaining dimension are likely to be most effective. A high degree of efficiency is assured by basing the initial question on sequences that typically do link impacts and training antecedents, as identified from the findings in Table 6.

The most effective combinations of "trigger" and follow-up questions can be determined only by trial-and-error. But, as a starting point, a reasonable first-generation approach can be suggested.

First-Generation Procedures

The interview questions suggested below are intended as prototypes that will be adapted to the specifics of the participant's field and current assignments, and are designed to suggest an appropriate focus rather than actual phrasing. They are drawn directly from the findings in Table 6, and are presented in the order of the catalog of specific participant achievements.

Category 1: Influencing development strategies. Only one of the sequences that lead to this type of impact has clear and consistent links to participant training. This is the sequence based on the promotion of new objectives in which the participant has come to believe. Of the nine reports that describe such a sequence, eight can be linked to participant training with reasonable assurance, and the ninth was based on learning experiences in another overseas country.

To facilitate recall of this type of event, we believe that the "trigger" question should focus on the impact and the impact-producing characteristic. A prototype question would be

(1) Have you had any success in gaining government support for a certain principle or objective or policy in which you strongly believe?

If a specific achievement of this type is reported, the evaluator would follow up with questions on the background of the participant's commitment to this principle or objective, to pin down the third element of attribution to participant training.

The other sequences in this group are not established as useful indicators by the data so far collected. But there is at least one (the impacts on investment decisions that grow out of a better appreciation of the magnitude of the inputs required) that merits further exploration in future assessments through the supplementary, open-ended types of questions earlier suggested.

Category 2: Stimulating new enterprises. Only limited attribution information was available for the reports in this category, for reasons earlier noted. But one potentially useful indicator is the transfer of models observed overseas, which was the focus of two reports, both linked to participant training.

The appropriate first question for this sequence should focus on the impact-producing characteristic and its training antecedents, deferring the consideration of actual impact to the follow-up questions. This will permit the field evaluator to pick up instances of important training outcomes that the participant has not yet been able to implement, for reasons beyond his control. A prototype question would be

> (2) Did you observe any types of industries or commercial enterprises abroad that you thought might be profitable ones to introduce in your country?

If such an event is reported, the follow-up questions would explore the impact component, to determine what if anything the participant has done with this idea since his return.

Category 3: Developing local capabilities. The most promising sequence in this category is similar to the one preceding, except that the focus is on internal operations, and that it should therefore occur more frequently, in a wider range of institutions. It consists of applying practices observed overseas to increase in-house capabilities, and reduce dependencies on external sources. Sequences of this type were described in three reports, all of them linked to participant training.

The patterning of the questions would be the same as in the preceding category, for the same reasons. A prototype question would be

> (3) In your observations abroad, did you see any examples of institutions similar to yours performing support services within their own shops that your institution had been obtaining from outside sources?

As before, follow-up questions would determine the impact of this observation to date, on the basis of actions the participant already has taken.

Category 4: Discovering new solutions. This category contains the sequence most frequently reported, which consists of applying technical knowledge to scientific discoveries, or better solutions to development problems. It appeared in 33 reports, all of them linked to participant training.

A line of inquiry appropriate to this sequence would begin with the impact and the impact-producing characteristic. A prototype question would be

> (4) Have you had occasion to do technical analyses (or research) which suggested better approaches to development problems (or which produced new, useful knowledge)?

The exact phrasing would depend on the nature of the participant's work and position. Follow-up questions would try to establish a clear link between the analytic method applied and the instruction provided in participant training.

A second sequence that emerged from this group, though much less strongly, leads to the same type of result via the use of external sources of information or assistance. This was cited as the critical element in two of the reports, both linked to participant training.

The most direct question for stimulating recall of this second sequence would focus on the impact and the training antecedent. A prototype question would be

> (5) Can you recall an instance since your return in which a person or institution or publication from another country provided information or help that was crucial to a new solution or product that you were trying to develop?

Though this type of impact may occur less frequently than some of the others, it does have the advantage of showing the clearest possible types of links to the experiences of participant training.

Category 5: Stimulating the adoption of preferred practices. Four sequences emerged from this category as relevant to the impacts of participant training. These consist of the transfer of technology learned in formal courses (10 reports) or observed in practice (2 reports); the promulgation of higher standards (4 reports); and the introduction of better techniques for obtaining public cooperation (3 reports). All 19 reports could be linked to participant training with reasonable assurance.

The two transfer sequences are sufficiently similar to be encompassed by a single question, that focuses on the impact and the antecedent. A prototype question would be

(6) Have you helped introduce any new farming techniques (or industrial processes) that are widely used in other countries but relatively unknown in yours?

The specifics of this question would depend on the nature of the participant's job assignment. Which of the two sequences that fit this question was in fact operative would be determined by follow-up questions.

For the third sequence, concerned with standards, a prototype question would be

(7) Have you had any success in encouraging your country's farmers (or other client groups) to invest more time or energy in a particular operation, by convincing them that this is important?

For the fourth sequence, concerned with more effective change-agent techniques, a prototype question would be

(8) Have you introduced any new techniques or approaches for persuading the farmers (taxpayers, other clients) to change their ways (or cooperate, or support the program)?

Both of these questions are based on the impact and the impact-producing characteristic. For both, the attribution component would be determined by follow-up questions.

Category 6: Introducing new services or programs. This category also suggested four sequences that are generally linked to participant training. These are produced by the participant's technical knowledge (10 reports), by the application of models he observed overseas (7 reports), by his acceptance of higher output requirements (6 reports), and by the leverage of his formal credentials (3 reports). Twenty-three of these 26 reports could be traced to participant training.

Three of these sequences lend themselves to the use of questions that encompass all three components, without encumbering the participant's task of recall. Prototype questions for these three sequences would be

(9) Did the new technical skills and capabilities that you acquired make it possible for your institution to undertake new services or projects that were not part of the program before?

(10) Did your experiences abroad suggest any new kinds of projects or services to you that you have since made part of your institution's program?

(11) Has the prestige or the credentials that you acquired as a result of your training helped you to "sell" a new activity or service that you wanted to start?

Events reported in response to any of these questions would confirm the total sequence, and require no further follow-up.

The fourth sequence is more complex, and would be better approached with an initial question limited to the impact and the impact-producing characteristic. A prototype question would be

(12) Have you had occasion to expand one of your programs with an additional element or component because you found that the original program was not comprehensive enough to achieve its objectives?

For this sequence, the antecedents in training, if any, would be determined by follow-up questions.

Category 7: Imposing higher standards. This category also contains four sequences linked to participant training. These are produced by the participant's technical knowledge (5 reports), his appreciation of the standards appropriate to this type of operation (17 reports), his familiarity with products (2 reports), and his use of specialized outside resources (7 reports). Thirty of these 34 reports could be attributed to participant training.

The first three of these sequences seem to be best suited to the type of question that combines the impact and the impact-producing characteristic. Prototype questions would be

(13) Have you had occasion to detect a technical error or shortcoming that no one else caught, and that you had to take special steps to correct?

(14) Have you imposed additional requirements or higher standards on any part of your operation because you thought the existing provisions were less than the job deserved?

(15) Have you had occasion to change design or construction specifications, to provide a better facility for the purpose intended?

For each of these sequences, training antecedents would be established by an appropriate follow-up question.

The fourth sequence, concerned with external sources, lends itself to the impact-plus-antecedent approach also used earlier for this dynamic.

A prototype question would be

> (16) Have you changed the standards or specifications for any job operation on the basis of new information that you obtained since your return from individuals or periodicals from abroad?

Follow-up questions would determine whether the participant's use of such sources is a general characteristic of his job performance.

Category 8: Changing approaches to fit needs of clients. From this category, only one potentially useful sequence emerges, and even this one is not consistently linked to participant training. It consists of actions that derive from the participant's concern for the convenience or well-being of the public the institution serves, which appeared in seven of the reports, but in only three that had clear training antecedents.

To focus the responses on the outcomes of training, the question appropriate to this sequence is one that specifies all three components. A prototype question would be

> (17) Have you had occasion to change any rules or operating procedures for the convenience of your clients, on the basis of ideas you picked up during your training?

Because the majority of the reports of this sequence were not convincingly linked to participant training, this narrower focus seems essential.

Category 9: Avoiding disruptions through timely action. This category produced no sequences that are consistently linked to participant training. But this was the inevitable result of our research procedure, which limited the collection of attribution data to the participants' own reports, and then refused to admit their comments as credible evidence of this type of essentially attitudinal change. For field use, an improved mechanism for collecting

attribution data on this category will have to be developed, since the dynamic is an important one to evaluate in impact assessments.

Events that are potentially useful indicators can readily be obtained through questions that ignore the attribution component, such as

(18) Has an occasion arisen in which you had to make an on-the-spot decision to meet special needs, even though this exceeded your authority or entailed certain risks?

(19) Have you run into a serious, unexpected obstacle in the midst of a certain task or project that forced you to exert much special effort to keep moving ahead?

If the participant is unable to report such events, the conclusion that training had no effect on these dimensions would be a reasonable inferrence, in light of the frequency with which such situations typically arise. If the trainee does report such events, their implications for training would have to be checked. In the first instance, evidence would be collected from the participant himself, through follow-up questions. Then, verification would have to be obtained for such credit as he might give to participant training, perhaps by consulting supervisors or peers who knew him both before and after his training abroad. Further data on these types of sequences may suggest less cumbersome mechanics.

Category 10: Completing tasks that require special effort or skill. The two sequences that emerge as relevant from this category are more mundane variants of sequences already included in the above categories, which led to more ultimate types of achievements. They would appear to be useful mainly when the above, sharper indicators fail to elicit positive responses. The two sequences consist of the effective performance of a skilled task as a result of the participant's specialized technical knowledge

(12 reports) or of his effective use of outside resources (3 reports). Thirteen of these fifteen reports showed clear links to participant training.

Because skilled task performance should be an everyday event in most situations, narrowly focused questions that explicitly incorporate the training component would be required to avoid overwhelming the data with irrelevant responses. Prototype questions would be

(20) Can you think of a specific task or assignment that you completed that called for the use of a specialized technique or skill you learned as part of your training?

(21) Since your return, have you obtained any advice or information from overseas sources that you've used in a specific task or assignment?

In practice, both of these prototype questions would be sharpened by specific references to the participant's current assignment.

Category 11: Improved or expanded dissemination programs. This category suggests four indicators of possible utility for activities in which the dissemination of information is an important objective. These consist of the application of technical skills to the improvement of the materials being disseminated (2 reports), the adoption of more far-reaching delivery systems (3 reports), the use of materials from other countries (4 reports), and the greater access provided by formal credentials (2 reports). Each of these eleven reports showed direct links to participant training.

For the first two of these sequences, questions based on impacts and impact-producing characteristics are likely to be most effective. Prototype questions would be

(22) Have you had occasion to improve the technical content of the information materials your unit distributes to clients?

(23) Have you introduced new or expanded delivery systems for getting the information your unit provides to larger numbers of clients?

Attributions to training would be determined through follow-up questions.

For the latter two sequences, the question format that incorporates the external input directly seems better. Prototype questions would be

(24) Have you made use of materials developed abroad in your public information programs?

(25) Have your credentials given you access to new audiences or groups, to promote the work of your institution?

In these instances, as in a number of earlier ones, the inclusion of the attribution element provides focus without encumbering the task of recall.

Category 12: Expanding institution's authority or charter. This category provides a number of indicator ideas, but no specific indicator emerges that is likely to occur reasonably often, or that has clear training antecedents. It would be useful to explore this category further with the open-ended questions earlier suggested, to try to find indicators useful for impact assessment. But, on the basis of the present data, indicators cannot be suggested.

Category 13: Developing more effective relationships with other organizations. The situation in this category is the same as in the one preceding. Again, further exploration seems desirable, but no useful indicators can as yet be suggested.

Category 14: Introducing data-based management aids. This category converges on a single sequence, as a matter of definition. The participant's use of data as a basis for planning or for decisions is the central element

in 27 reports, of which 21 show direct links to participant training. The remaining six describe impacts achieved by individuals who also had overseas training, but not in the United States.

Because of the similarity of the definitions of the impact and the impact-producing characteristic, the most straightforward question is one that emphasizes this single component. A prototype question would be

(26) Have you collected special data or used specialized analytic techniques to help you with the planning or evaluation of any aspect of your operation?

The origin of these techniques and their tangible benefits would be the subject of follow-up questions.

Category 15: Introducing cost- or time-saving measures. The most common sequence in this category appears to be too general a phenomenon to serve as a useful indicator, since its origins span the full range of antecedents. But a second sequence, concerned with the application of work routines observed in other institutions, shows promise. It is based on five reports, of which three are attributable to participant training, and a fourth to overseas training in another country.

The most appropriate question format for this sequence is the one that specifies the impact-producing characteristic and its antecedent, defers the impact to follow-up questions. A prototype question would be

(27) Did you observe any specific working routines in similar institutions in other countries that you adopted in your own operations?

The follow-up questions would focus on the discernible benefits that the new procedure provided.

Category 16: Imposing tighter administrative controls. This category suggests four relevant sequences, one or more of which should be applicable to most job situations. They include the discovery of shortcomings in items supplied by vendors (2 reports), the introduction of checks on staff performance (4 reports), the use of systematic monitoring systems (2 reports), and standardization of haphazard work procedures (6 reports). Twelve of these fourteen reports have direct links to participant training.

All four of these sequences lend themselves to the questions based on impacts and impact-producing characteristics. Prototype questions would be

(28) Have you had occasion to detect technical deficiencies in the plans or work of contractors or suppliers?

(29) Have you introduced any independent checks on the work of your staff to insure the accuracy of their performance?

(30) Have you introduced more regular or systematic reporting systems to enable you to monitor the performance of your staff more closely?

(31) Have you had occasion to introduce fixed, systematic procedures for performing a certain operation that had been done in a haphazard manner before?

The training antecedents, as always, would be determined through follow-up questions.

Category 17: Improving organizational structure. This category suggests one generally relevant sequence, which consists of the application of outside models to improve the unit's internal organizational structure. It appeared in three reports, all of them linked directly to participant training.

A direct question that spans all three components seems reasonable and best. A prototype question would be

(32) Have you found the organizational models of any other institution useful in improving your own unit's internal structure?

Questions of this type would, of course, be appropriate to participants at the more senior levels.

Category 18: Upgrading staff capabilities or morale. This category points to four clearly relevant sequences, and to a fifth potentially relevant sequence, if attributability can be clearly established. The four more consistently relevant sequences consist of the application of technical knowledge to improve the content of staff training programs (10 reports), the sharpening of personnel selection and placement practices (9 reports), the improvement of training techniques (2 reports), and the use of training materials from abroad (3 reports). Nineteen of these 24 reports could be traced clearly to participant training. The more tentative indicator lies in the application of sound human relations practices, which appeared in a total of nine reports, but in only four that could be attributed to participant training.

For the first three of these sequences, questions based on the impacts and impact-producing characteristics should prove effective. Prototype questions would be

(33) Have you applied your technical knowledge to the conduct or content of staff training programs?

(34) Have you made any specific changes in selection, placement, or training requirements to upgrade the caliber of your staff?

(35) Have you introduced any training approaches or techniques different from those used in the past?

For each of these sequences, follow-up questions would be used to determine training antecedents.

For the fourth sequence, concerned with the use of external materials, the same pattern followed earlier would be applied. A prototype question would be

> (36) Have you used any materials developed abroad in the conduct of your internal staff training courses?

For the fifth, more tentative sequence, all three components would be included, to try to restrict the recall of such reasonably common occurrences to those that have training antecedents. A prototype question would be

> (37) Did you learn or observe anything during your training that you found useful as a means of raising your staff's motivation or overall morale?

Responses that are predicated on claims of attitude change would have to be confirmed, perhaps with supervisors or peers, as suggested for another category above.

Category 19: Upgrading equipment. The sequence that emerges as most relevant from this category is the one that derives from the participant's familiarity with technical equipment. This is the key factor in ten reports, all of them linked to participant training.

The appropriate question format is the one that focuses on the impact and impact-producing characteristic. A prototype question would be

> (38) Have you been able to apply your knowledge of specialized equipment to upgrade the equipment available to your unit or the way in which it is used?

The antecedents of such narrowly focused actions should be easy to establish through a single follow-up question.

Category 20: Improving record-keeping or information-retrieval systems. This category points to no single sequence as more relevant

than the others, because the reports are dispersed across six different paths to this type of achievement. But, inasmuch as six of the eight reports have definite links to participant training, a general indicator of this type of impact should be included.

This can be done by limiting the initial question to the nature of the impact alone, and deferring the other two components to follow-up questions. A prototype initial question would be

(39) Have you effected any improvement in your unit's record-keeping (or information-retrieval) systems?

The data collected in response to this general question should point up the more productive of the sequences, and lead to more sharply focused questions for future assessments.

It is not anticipated that all 39 of these questions would be used in any single assessment. Rather, the above set is a "master list" from which those most appropriate to the activity at hand would be selected. And, as earlier noted, the phrasing of the questions selected would in every instance be adapted to the situational specifics.

As a result of actual field experience, many of these prototypes will undoubtedly be modified, moreover; especially with respect to the distribution of foci between "trigger" and follow-up questions. But we believe that even in their present form these prototypes provide a sound basis for informative and useful impact assessments, and that the central objective of this exploratory research has been accomplished.

Aggregate Results

As noted throughout the preceding discussion, the three critical points of the impact sequence will be determined for each of the events recorded by the field evaluator during the course of the assessment. The primary reason for this is to establish clear-cut attributability to participant training. But, as an important by-product, establishing the total sequence in this manner will also enrich the conclusions that can be drawn from the assessment results.

Three different but complementary profiles that reflect the impact of the participant training program being evaluated can be developed.

The first is an aggregate of the specific impacts reported. Which of them have been achieved fairly consistently by graduates of the program? Which have been sporadic? Which have not surfaced at all?

This profile would reflect on the total management of the activity being evaluated, not on the quality of the training component alone. For impact requires opportunity as well as capability, and the impacts that are found not to occur could be the results of shortcomings in either. In exploring the implications of these findings, not only the quality of the training experiences but also such factors as the selection, assignment, and support of the participants would have to be considered.

The second profile would be an aggregate of the impact-producing characteristics that the data reveal. Irrespective of their specific manifestations, which of these characteristics were noted consistently, in the form of one type of impact or of another? Which were absent or rare?

This profile would provide a "purer" indication of the effects of the training component than the preceding. For it is reasonable to assume

that characteristics developed in training would emerge in some form in the participant's job performance, irrespective of the vagaries of the opportunity factor. Unlike the profile of discrete impacts reported, the aggregate of the impact-producing characteristics would show the lasting effects of participant training, which would be expected to continue to generate impacts of various types long after the present assessment has been completed.

The third profile would be an aggregate of the specific training experiences that were cited as the antecedents of the impacts reported. What types of experiences were most frequently credited with launching sequences that later result in tangible impacts in the job situation? Which of the experiences that the participant is known to have received are not cited among the critical antecedents? And, by extrapolation from the data collected for other programs, which of the shortfalls in impacts achieved may be attributable to experiences that the participants in this particular program did not receive?

This third profile would be the one that would point most directly to potential improvements that might be made in the design of the training component. In conjunction with the other two profiles, it should provide a comprehensive empirical basis for identifying the specific strengths and weaknesses of the program, as elaborated in the following Section.

VII: PRACTICAL APPLICATIONS

The prototype indicators and the related analytic procedures that have been suggested are the "raw material" from which the types of impact-based assessment procedures that were envisioned at the beginning of this project can be constructed. In this final Section, we shall try to put these findings into perspective, by previewing the nature of the assessments that this new methodology will make possible when it is put to practical use in the field.

Appropriate Assessment Objectives

As noted at the beginning of this report, we do not consider it useful to invest in an evaluation of the participant training program that will accomplish no more than to attest to its goodness. Though program evaluation has become so fashionable in recent years that it is often treated as a worthwhile end in itself, the time and effort of the large number of people who must participate in any reasonably large-scale evaluation can be justified only by specific, operationally useful results. Even more basic to the design of a sound field assessment than the choice of methodology is the asking of questions to which someone really wants answers.

In the specific context of participant training, we believe that there are three major types of follow-up studies that can provide AID and the host governments with useful policy guidance. They would be undertaken for different purposes and carried out in different manners, as follows:

Type I studies would be open-ended, diagnostic assessments that would be carried out periodically for specified training activities, to stimulate or suggest ideas for their improvement. Each study would focus on a single type of training activity, such as the training of agricultural specialists,

or educational technologists, or family planning workers, and establish the nature of the impacts that graduates of this program typically are (or are not) achieving. Shortfalls in hoped-for achievements would point to areas in which different or supplemental approaches should be considered.

In the initial studies of this type, the identification of areas in which better results could and should be obtained would be largely judgmental. The targets against which actual performance would be compared would be based on the expectations of the specialists who programmed this activity, on the dimensions that they consider to be the key development needs. To subsequent studies, increasingly more objective norms could be applied, as the accumulated findings begin to define the kinds and ranges of impacts that are being achieved elsewhere, and that are therefore known to be realistic.

Ideas for specific program improvements would be derived from an analysis of the training antecedents that are credited by the respondents for the field achievements reported. For these data would point to not only those training experiences that were productive of later achievement, but also to those that appear to have had minimal effect, and that presumably should be strengthened. The approach that was used for research purposes to determine attributability to participant training would be applied also to operational assessments, as a diagnostic procedure.

Type II studies would be comparative evaluations of alternative patterns of implementation that have been tried at varying times, in different countries, or by separate training centers. These studies also would focus on a specified training activity, and a reasonably homogeneous participant group. But they would be designed to test specific hypotheses about specified program characteristics, and to provide reasonably confident answers rather than potentially useful ideas.

Studies of this type would be particularly useful as "built-in" evaluations of programming changes stimulated by Type I diagnoses, planned and designed at the time these changes are introduced, as part of a single package. But they can also be applied retrospectively, to any program feature that has varied for different participant groups, by chance, necessity or design. Type II studies would be carried out by identifying reasonably comparable groups of participants that are representative of the alternative programming options, and conducting field follow-ups of their respective achievements.

Type III studies would transcend the boundaries of a single kind of training activity, and aim for policy guidance on basic programming characteristics that affect most or all of the separate training activities that comprise the program. They would be similar in intent to the world-wide survey of participant training that was launched some years ago, and would be undertaken from time to time to provide an overview of the program as a whole.

But, as we visualize them, Type III studies would not be based on new data collection, since global assessments are complex and costly. Rather, such studies would be carried out by appropriate analyses of the aggregate data base that has been provided by the more narrowly focused assessments already completed. With proper planning, it should be possible to devise a common framework for the separate Type I and Type II studies that would be conducted, to permit some aggregation of findings despite the differences in the activities and program characteristics on which they would focus.

Assessments that are aggregated on a country-by-country basis we consider to be less useful than the above activity-specific approaches. Much of the capability that the findings of this study provide for identifying discrete impacts would be wasted if the indicators had to be made sufficiently broad to encompass all of the training activities in a given country, and

many of the diagnostic implications available from the comparison of similar activities would no doubt be washed out by combining family planning and agricultural impacts, or other apples and pears. If administratively convenient or appropriate, the separate assessments that are made of the various training activities in a country can be bound together, of course, to constitute a "Country Report." But the use of highly specific indicators, customized to fit each field of substantive specialization, is fundamental to the methodology that has been developed.

Conduct of Field Assessments

The design of an appropriate field assessment would be less demanding of the local evaluator than we had envisioned in the original research proposal. For, some of the steps that we had thought would require on-site development in accordance with specified procedures appear to be amenable to standardized, uniform approaches. And the additional insights that will be gained from experience in the conduct of a number of actual, "live" assessments should further increase the degree of structure that can be provided.

One major aspect of the assessment procedure that seems amenable to the development of a fixed, standard routine is the collection of data on the attribution to training of the achievements reported. The categories of "evidence" developed for the analysis of attribution in Section V are the beginnings of a generally applicable checklist for use in the field, for purposes of both verification and diagnosis. A standard checklist can almost certainly be developed, and included among the ready-to-go items in the assessment "kit."

A second simplification lies in the degree to which it will be possible to pre-select appropriate indicators from the master list, on the basis of logical relevance to the participants' positions and assignments, and of the

empirical data that will surface the key sequences with increasing clarity for each new assessment. Much can also be done centrally in the development of interview protocols for assembling data on the indicators selected. Because there would typically be many more indicators than can be included in a sixty- to ninety-minute interview session, three or four different protocols would be developed, such that no single respondent is asked about all, but adequate data on each is obtained from the combined group responses. In each protocol, the less demanding indicators would be put at the beginning, so as not to discourage the interviewee with an initial string of negative responses. Performing these operations centrally seems realistic.

The main tasks that would be left to the field evaluator would be to check the applicability of the questions that were pre-selected, and to work out the most effective phrasing for each, to fit local conditions. Suggested phrasings would be supplied, but preliminary tryouts and adaptations will almost always be required. This would be done by the local team that will also take responsibility for the actual data collection.

The results would be aggregated in terms of

1) the specific types of achievements attributable to participant training that were reported,

2) the gains in lasting institutional strengths that these achievements reveal, and

3) the specific training experiences that contributed to the above impacts,

in accordance with the earlier discussions.

Indicated Next Steps

To complete the methodological development, the important next step is that of instrumentation. This could best be accomplished by applying these concepts to an actual field assessment, and solving procedural problems as they arise during the course of the study.

Specifically, it is thought that Type I diagnostic studies should be attempted of a number of specific training activities in a sample of two or more countries. On the basis of the above findings, preliminary evaluation "kits" would be designed for the specific training activities selected, and data would be collected in a number of successive cycles in each of the participating countries, to permit interim methodological adjustments. Data on basic methodological issues not fully resolved would be collected as an integral part of this process, by the "piggy-back" approach suggested in the preceding Section.

The dual objectives would be to produce credible, useful assessment results for the activities selected, and to convert the ideas and approaches developed in this exploratory research into practical, operational assessment procedures.

Table 6:

Distribution of Reports by Achievement, Attribution, Impact-Producing Characteristic

Achievement & Attribution	A: Tech.Soph.	B: Possibilities	C: Requirements	D: New Goals	E: Convictions	F: Take Resp.	G: Data Orient.	H: Goal Orient.	I: Efficiency	J: Hum. Rel.	K: Equipment	L: Routines	M: Sources	N: Credentials
1: Development Strategies														
Clear-Cut			1	3			1							
Probable		1	1	5										
Possible														
Doubtful			1		2									
None														
Not U.S.*				1	3									
No O'seas*														
2: New Enterprises														
Clear-Cut		1												
Probable	1	1												
Possible														
Doubtful														
None														
Not U.S.*						1								
No O'seas*	2					1								
3: Local Capabilities														
Clear-Cut	1	2												
Probable		1				1								
Possible														
Doubtful					2									
None														
Not U.S.*								1						
No O'seas*					1									
4: Discoveries, Solutions														
Clear-Cut	16	1											2	
Probable	17			1										
Possible														
Doubtful														
None														
Not U.S.*														
No O'seas*														

* These categories refer to non-participants.

Table 6 (continued):

Distribution of Reports by Achievement, Attribution, Impact-Producing Characteristic

Achievement & Attribution	A: Tech.Soph.	B: Possibilities	C: Requirements	D: New Goals	E: Convictions	F: Take Resp.	G: Data Orient.	H: Goal Orient.	I: Efficiency	J: Hum. Rel.	K: Equipment	L: Routines	M: Sources	N: Credentials
5: Adoption of Preferred Practices														
Clear-Cut	5	2	2	1							1	3	1	
Probable	5		2											
Possible														
Doubtful														
None														
Not U.S.*					1									
No O'seas*														
6: New Services, Programs														
Clear-Cut	7	4	3	1										3
Probable	2	2	2											
Possible														
Doubtful				2		1				1				
None														
Not U.S.*	1	1			1						1			
No O'seas*			1			1				1				
7: Higher Standards														
Clear-Cut	5		12	1	1		1				2		5	
Probable	3		2										1	
Possible						1								
Doubtful														
None													1	
Not U.S.*			2			1								
No O'seas*			1											
8: Needs of Clients														
Clear-Cut				1					1		1			
Probable				2				1						
Possible													1	
Doubtful						1								
None														
Not U.S.*				1										
No O'seas*			2	3										

* These categories refer to non-participants.

Table 6 (continued):

Distribution of Reports by Achievement, Attribution, Impact-Producing Characteristic

Achievement & Attribution	A: Tech.Soph.	B: Possibilities	C: Requirements	D: New Goals	E: Convictions	F: Take Resp.	G: Data Orient.	H: Goal Orient.	I: Efficiency	J: Hum. Rel.	K: Equipment	L: Routines	M: Sources	N: Credentials
9: Timely Action to Avoid Disruption														
Clear-Cut								1			1			
Probable	1							1						
Possible						8		6						
Doubtful								2						
None								1						
Not U.S.*						2		2						
No O'seas*														
10: Demanding Task														
Clear-Cut	7		1					1					3	
Probable	3						1	1						
Possible								1						
Doubtful								1						
None														
Not U.S.*	1							1						
No O'seas*	1													
11: More Dissemination														
Clear-Cut	1	3	1										4	2
Probable	1		2											
Possible														
Doubtful								3						
None			1											
Not U.S.*			1	1				1						
No O'seas*								1						
12: Institutional Charter														
Clear-Cut	1	1	2											1
Probable														
Possible														
Doubtful		1	3											
None														
Not U.S.*														
No O'seas*			2											

* These categories refer to non-participants.

Table 6 (continued):

Distribution of Reports by Achievement, Attribution, Impact-Producing Characteristic

Achievement & Attribution	A: Tech.Soph.	B: Possibilities	C: Requirements	D: New Goals	E: Convictions	F: Take Resp.	G: Data Orient.	H: Goal Orient.	I: Efficiency	J: Hum.Rel.	K: Equipment	L: Routines	M: Sources	N: Credentials
13: Outside Working Relationships														
Clear-Cut			1										1	1
Probable														
Possible						2		1		1				
Doubtful						1				1				
None														
Not U.S.*														
No O'seas*														
14: Data-Based Management Aids														
Clear-Cut							11							
Probable			1				10							
Possible														
Doubtful														
None														
Not U.S.*							6							
No O'seas*														
15: Cost- or Time-Saving Measures														
Clear-Cut									1			3		
Probable		1							1					
Possible									2					
Doubtful									5					
None									1			1		
Not U.S.*									1			1		
No O'seas*									1					
16: Tighter Controls														
Clear-Cut	1		2			1	1		1			5		
Probable	1		1				1		1					
Possible								1						
Doubtful						3		2	1					
None														
Not U.S.*			1			1		1	3			1		
No O'seas*														

* These categories refer to non-participants.

12

Table 6 (continued):

Distribution of Reports by Achievement, Attribution, Impact-Producing Characteristic

Achievement & Attribution	A: Tech.Soph.	B: Possibilities	C: Requirements	D: New Goals	E: Convictions	F: Take Resp.	G: Data Orient.	H: Goal Orient.	I: Efficiency	J: Hum. Rel.	K: Equipment	L: Routines	M: Sources	N: Credentials
17: Organization, Structure														
Clear-Cut									2			3		
Probable									2					
Possible								1						
Doubtful														
None									1					
Not U.S.*									1					
No O'seas*									2					
18: Higher Staff Capabilities, Morale														
Clear-Cut	7		3					1		1		2	3	1
Probable	3		1							3				
Possible			3					1		3				
Doubtful								1		2				
None														
Not U.S.*			2											
No O'seas*						1								
19: Physical Facilities, Equipment														
Clear-Cut	1										8		1	
Probable			1								2			
Possible								1						
Doubtful			1											
None														
Not U.S.*														
No O'seas*														
20: Record-Keeping, Information Systems														
Clear-Cut	1		1						1		1			
Probable							1					1		
Possible														
Doubtful														
None														
Not U.S.*														
No O'seas*							1		1					

* These categories refer to non-participants.

13

Abstracts of Illustrative Reports

Illustrative Report #1

Wrote scientific paper on exploitation methods of bauxite for commission developing these plans, to persuade them to take effects on the ecology into account in this decision.

No attribution comment. Obtained Ph.D. in conservation at UCLA.

Classification:

Impact Category	1: Influenced development emphases
Characteristic	D: Acceptance of new objectives
Attribution	Probable; nature of the achievement

Illustrative Report #2

Noted that private charter companies to operate air cargo do well in the U.S. Sold this idea to government, and licenses for air cargo services are now being granted.

Classification:

Impact Category	2: Introduced new commercial enterprise
Characteristic	B: Awareness of possibilities
Attribution	Clear-cut; transfer of U.S. model

Illustrative Report #3

Identified cause of cattle disease that he had worked on extensively prior to training but was unable to handle.

Credits pathology course for providing him with essential information.

Classification:

Impact Category	4: Discovered solution to significant problem
Characteristic	A: Technical sophistication
Attribution	Clear-cut; specific course cited

Illustrative Report #4

Solved problem of cotton spoilage by setting up research study that identified six fungicides as effective cures for the causal disease. Three of these fungicides are now being used and are giving good results.

Credits U.S. journals for information on the specific fungicides that it would be most promising to try.

Classification:

Impact Category	4 : Discovered solution to signficant problem
Characteristic	M: Access to external sources of information
Attribution	Clear-cut; use of U.S. sources

Illustrative Report #5

Introduced visuals, pamphlets, and other media techniques into school health programs, which resulted in documented improvements in child health in follow-up studies one year later.

Reports he learned these dissemination techniques in the U.S.

Classification:

Impact Category	5: Stimulated the more widespread adoption of preferred practices
Characteristic	L: Familiarity with workable operating routines
Attribution	Clear-cut; specific practice adopted

Illustrative Report #6

Started lab at university to bread fresh water snails so that they would be available for researchers who study parasites more cheaply and quickly than if they had to go out and collect them.

Based this on a similar lab that was maintained at the university in the U.S. where he was trained.

Classification:

Impact Category	6: Initiated a new service
Characteristic	B: Awareness of possibilities
Attribution	Clear-cut; application of U.S. model

15

Illustrative Report #7

Persuaded Dean of University that practice of using academic faculty as student counselors is not effective, and obtained approval to establish the first professional counseling center in Thailand with him as the director.

Indicated that he could not have done this without the Ph.D. in counseling he obtained in the U.S.

Classification:

Impact Category	6: Initiated a new service
Characteristic	N: Credibility
Attribution	Clear-cut; use of credentials

Illustrative Report #8

Revised air traffic control procedures for military and commercial aircraft to increase safety, following standards of separation, tolerance, and coordination he learned at Phoenix and San Francisco.

Classification:

Impact Category	7: Raised standards of services provided
Characteristic	C: Appreciation of inputs required
Attribution	Clear-cut; application of U.S. model

Illustrative Report #9

Upon reading of an animal disease in a certain district in the newspaper, he traveled there on his own initiative, diagnosed it and instructed the local vet on the correct procedure for controlling it.

Credits training with the confidence to take charge.

Classification:

Impact Category	7: Raised standards of services provided
Characteristic	F: Willingness to act
Attribution	Possible; claim of increased self-assurance

Illustrative Report #10

After reading in Time magazine about the demand for corn and the rise in world prices, instructed workers to grade the road as much as possible near corn-growing villages so as to make it easy to get corn to market.

Reports he picked up habit of reading Time in the U.S.

Classification:

Impact Category	8 : Changed procedures to be more responsive to needs of clients
Characteristic	M: Access to external sources of information
Attribution	Clear-cut; use of U.S. source

Illustrative Report #11

When he discovered that the province would not provide the support to his construction operation that had been promised, he set up his own camp and arranged a supply system independent of the province to provide fuel, provisions, and parts, and got the job done.

Indicates that he could not have done this except for his practical experience in working with a state highway construction unit in the U.S.

Classification:

Impact Category	9 : Avoided disruption of service
Characteristic	H: Goal orientation
Attribution	Clear-cut; practical job experience cited

Illustrative Report #12

Changed practice of simply advertising lectures in the newspaper to a system of personal contact with each ministry to persuade the appropriate units to send representatives. This has greatly improved attendance.

No attribution statement. Obtained M.A. in U.S.

Classification:

Impact Category	11: Improved dissemination program
Characteristic	H: Goal orientation
Attribution	Doubtful; personal characteristics

Illustrative Report #13

Recommended that all public health nurses should be authorized to conduct examinations and prescribe contraceptives. This recommendation has been implemented.

No comment on attribution.

Classification:

Impact Category	12: Expanded institution's charter
Characteristic	B: Awareness of possibilities
Attribution	Doubtful; good idea

Illustrative Report #14

Renegotiated with the AID mission the amount of the host government contribution to participant training, obtaining more favorable terms.

Credits U.S. training with developing sufficient confidence to present his case firmly.

Classification:

Impact Category	13: Developed more effective relationships with sources of aid
Characteristic	E: Commitment to principles
Attribution	Possible; claim of increased self-assurance

Illustrative Report #15

Has begun to do study of amount of traffic and speed on road, so as to be able to predict maintenance requirements and keep road in better condition.

Credits U.S. courses in civil engineering.

Classification:

Impact Category	14: Introduced data-based management aids
Characteristic	G: Data orientation
Attribution	Probable; general credit

Illustrative Report #16

Adopted simple method of grafting mangoes which required only a coconut husk and a plastic bag, which he had seen farmers doing in another province.

Classification:

Impact Category	15: Introduced cost- or time-saving measure
Characteristic	L: Familiarity with workable operating routines
Attribution	None; other source

Illustrative Report #17

Since returning from training, has refused to accept inadequate road surveys from subordinates and made them do the job over, even though he himself was noted for sloppy surveys prior to training.

(Supervisor's report)

Classification:

Impact Category	16: Imposed tighter controls on staff
Characteristic	E: Commitment to principles
Attribution	Clear-cut; before-after change observed

Illustrative Report #18

Introduced system of identity cards for airport workers who require access to terminal and restricted areas, on basis of observations at London airport.

Classification:

Impact Category	16: Imposed tighter controls on staff
Characterisitic	L: Familiarity with workable operating routines
Attribution	Non-participant, overseas training

Illustrative Report #19

Contrary to standard practice, gave subordinate authority to make on-the-spot decision on trips up-country, avoiding the normal delay of postponing a decision until his return.

Credits experiences in U.S. with developing this kind of management attitude.

Classification:

Impact Category	17: Improved the allocation of responsibilities
Characteristic	H: Goal orientation
Attribution	Possible; attitude change

Illustrative Report #20

Obtained approval of U.S. university to supervise thesis work of colleagues who did not have time to finish on campus. Was able to do this because he is so highly regarded by this university, which he also attended.

Classification:

Impact Category	18: Upgraded capabilities of the staff
Characteristic	N: Credibility
Attribution	Clear-cut; use of credentials

Illustrative Report #21

Recommended that department purchase centrifuge other than the one they had been intending to buy because its higher-speed motor would give superior performance.

Credits course he audited in U.S. with specific training on centrifuges.

Classification:

Impact Category	19: Upgraded equipment
Characteristic	K: Familiarity with equipment
Attribution	Clear-cut; specific course cited

Illustrative Report #22

Introduced a system for maintaining an up-to-date listing of all pending tax cases, which had not been done before, but which he now considers essential.

Credits the emphasis on good record keeping that was stressed in his courses in the U.S.

Classification:

Impact Category	20: Improved record-keeping system
Characteristic	I: Efficiency orientation
Attribution	Probable; credit to general work style

Office of International Training

3/4

Mr. Roger Ernst
Director
USOM/Bangkok
Agency for International Development
Washington, D. C. 20523

Dear Roger:

I am attaching, herewith, a copy of the final report submitted by the American Institutes for Research recently on their study in Ghana and Thailand. The title is "Assessing the Impact of Participant Training on the Attainment of Development Goals."

Please feel free to pass this copy to the government officials who assisted in making the study possible. We are most grateful for their cooperation.

Sincerely,

/s/

Arthur A. Kimball
Director

Attachment
As stated

Clearance:

AFR/Ghana, Joan Coe

SA/LT, Jacob Krulfeld

SER/IT, Arthur F. Byrnes

SER/IT:Philip Sperling:ftn:28778:7Jun74