DATA COLLECTION HANDBOOK

CARE Tools for Evaluation

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March 1991

125-11241

isn 11241
bgl. 89,95

FOREWORD

Over the years, CARE has sought to improve its programming in a variety of ways, for example by instituting the Multi-year Planning System and the Regional Technical Assistance Teams. As part of this effort, increased attention is being given to monitoring and evaluation of CARE projects. Evaluation was selected as one of the three areas of focus in the Sustainable Impact Program, funded for the period 1991-1995. The *CARE Program Manual*, issued in October 1990, provides practical frameworks and administrative guidance on project monitoring and evaluation. It provides a foundation for additional efforts to strengthen CARE's monitoring and evaluation activities. Among these efforts is the production of this *Data Collection Handbook: CARE Tools for Monitoring and Evaluation.*

The handbook is intended to assist project managers and other staff determine what information about their projects they need to collect and how to collect it. It provides short and simple introductions to a variety of data collection techniques often used at the project level such as survey techniques, interviews, and others. Although most staff have some familiarity with the data collection methods, the handbook should help clarify these techniques as it outlines their advantages and drawbacks and gives practical advice on how to use them to get useful information.

A review of the relevant sections of the Handbook early in the planning for data collection activities will help minimize practical problems (like using poorly trained interviewers) and reduce the chances of collecting misleading or useless information.

Although a useful introduction, the Handbook is not intended to stand alone in guiding data collection activities. The Handbook includes recommendations for other books on evaluation and data collection which should be used to complement the Handbook's brief overview. It is also recognized that the written word is not a substitute for human help in sorting out data collection problems, especially where statistics are involved. Readers are encouraged to contact more experienced colleagues, such as, in CARE, the Regional Technical Advisers, who have specialized skills in data collection.

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ACKNOWLEDGMENTS

Special thanks go to Sandy Laumark, Ph.D., for coordinating the production of this document. Her timely comments, support, and guidance during the Handbook's development were extremely valuable.

Many other CARE staff members made important contributions at various stages of its evolution. In particular, Gary Burniske provided a very detailed and useful set of recommendations to improve the Handbook and Helen Seidler helped develop many of the data collection steps outlined in Chapters Three through Six.

Thanks are also due to Martha Keehn for her substantive contributions to the Handbook's content, editing, and layout. The preparation of the Handbook was supported with funding from PACT and from the A.I.D. Office of Private and Voluntary Cooperation through CARE's Matching Grants.

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Table of Contents continued

Figures:

TABLE OF CONTENTS

Continued on next page

Table of Contents continued

-Continued on next page

CHAPTER ONE

AN APPROACH TO EVALUATION

The main reason CARE, or any development assistance agency, collects information is to increase the effectiveness and impact of its field projects. Our ultimate objective is to bring about substantial and sustainable improvements in the lives of people. We all have a responsibility to ensure that our resources have optimal and enduring impact in alleviating poverty.

This *Data Collection Handbook* will provide CARE staff and country offices with methods, processes, and tools to carry out a wide range of activities, including needs assessments, situation analyses and baseline surveys, monitoring, and evaluations. CARE's *Program Manual* guided the development of this manual and helped shape its content. You are encouraged to refer to Chapter Five of the *Program Manual*, "Monitoring and Evaluation," for policy issues and guidelines.

The manual is written not only for CARE staff, however, but also for those in other agencies who have some level of responsibility for designing, planning, or managing a data collection activity, collecting, analyzing, and interpreting data, and reporting and using the results.

We hope that the manual will serve some additional purposes as well:

- It should help project management obtain reliable information necessary for effective and informed decision-making, which should result in qualitatively better projects.

- It will support the overall effort -- in CARE and other agencies -- to improve monitoring and evaluation of development programs.

The manual should also be of interest to those who are less directly involved with data collection activities but who are concerned with obtaining and using information to improve the quality of projects. External evaluation teams who plan and carry out data

collection activities for CARE or for other development assistance agencies may also benefit from some of the practical methods and tools in this manual.

A. CARE's Data Collection System

At present, CARE has six sectoral units: Primary Health Care, Agriculture and Natural Resources, Small Economic Activity Development, Population and Family Planning, Food Programming, and Training. Each of these units is developing its own evaluation strategy as well as standardized questionnaires to collect and report basic data in these sectors. These questionnaires are completed once a year by the project managers and sent to the appropriate sector directors. CARE staff members will want to refer to these sectoral strategies before beginning data collection activities.

Basic data. Development agencies need basic quantifiable data about project activities worldwide to understand the scope of their work. These data are useful for donors, for public relations, to support requests for government and foundation grants, and for other purposes. All CARE-managed projects are asked to collect basic data regarding outputs such as "number of trees planted," "number of children immunized," or "number of loans disbursed."

Project implementation reports. These regular reports, called "P.I.R.s" in CARE, are the primary mechanism for monitoring and reporting progress towards achieving project activities, outputs, and intermediate goals. Because no standard format exists, each country office designs its own format to meet the information requirements of the project as well as other users. Primary users of the information are the country office and project staff, the CARE-USA Donor and Public Relations Department, Regional Management Units, and donors.

Evaluations. Most CARE projects undertake mid-term and final evaluations; some projects also have post-project evaluations.

- Mid-term evaluations are conducted approximately twelve to eighteen months after a project begins and repeated every two years if the project has a long cycle. Mid-term evaluations are sometimes called *formative* evaluations because they are conducted during the project. The results are used to adjust or "form" the project while it is still being implemented.

- Final evaluations are carried out near the end of the funding cycle when activities are almost completed. These are also called *summative* evaluations because they "summarize" what the project has accomplished.

- Post-project evaluations are done at least one year after project activities have come to an end.

CARE's evaluation library and database. An important part of CARE's data collection system is its evaluation library, which contains hard copies of evaluation reports from CARE-managed projects throughout the world. In addition to the library, a computerized evaluation database exists, cross-referenced by subject, key words, and country. This ensures that all evaluations are available to CARE staff. To request a copy of any evaluation, write to the Management Assistant, Program Support Unit, Technical Assistance Group, CARE New York.

Who should participate in data collection? The purpose and kind of the data collection activity determines who should participate. If the purpose is to provide staff members with information they can use to improve the program, staff and even community members can and should participate. On the other hand, if a donor or other key stakeholder requests an objective evaluation to challenge assumptions, it may be preferable to rely more heavily on outside evaluators. An external evaluator may be better able to take a fresh look at the project and establish credibility with donors.

Participation of project staff in planning, executing, and reviewing results is appropriate and extremely important in certain data collection activities. These might include situation analyses, needs assessments, baseline surveys, monitoring, and rapid appraisals. However, caution should be used when project staff are to participate in evaluations. Experience has shown it is sometimes difficult for staff members to distance themselves from the project and take a fresh and objective view. Also, because they are so familiar with the project they may overlook the obvious and neglect to include important factors that influence the project's outcomes.

Overall, staff participation helps create an important "buy-in" that increases the likelihood that results get used and is an important staff development exercise that increases knowledge and analytical skills.

Conceptual frameworks. CARE ordinarily uses two conceptual frameworks for conducting data collection activities: project goals and key questions.

- *Project goals*: evaluating the indicators of goals and targets of activities and outputs. This is sometimes called a goal-oriented approach.

- *Key questions*: providing answers to questions that stakeholders have about the project. Questions can address the project's design, its process, products, and costs in relation to benefits.

Cost and effort for evaluations. An important issue to consider is how much time and resources you should invest in data collection. CARE recommends the level of effort for evaluations be limited to fulfilling four purposes: identification of strengths and weaknesses, determining results, developing lessons learned, and satisfying the stakeholders.

At a minimum, the evaluation should review key project documents, interview key players, review existing data, visit project sites to interview participants, involve stakeholders in a review of the findings and recommendations, and prepare an evaluation report.

Data collection techniques. A wide variety of data collection techniques exists and each has advantages and disadvantages. The information needs of the project influence what techniques are used. Techniques used commonly to collect data for CARE-managed projects include questionnaire surveys, interviews, observation, and review of documents.

B. How to Use This Handbook

There are several different ways you can use this manual:

1. **Designing a data collection activity.** Whenever you plan or design a data collection activity, this manual can be helpful. The more common data collection activities undertaken by field offices are these:

   - situation analyses and needs assessments;
   - baseline surveys;
   - monitoring;
   - mid-term, final, and post-project evaluations.

   You can use the steps and tools in this manual to design the data collection activity from start to finish or use it anywhere in between.

2. **Informal training.** The manual can be helpful as you conduct in-house training with staff. This type of training can take place as you work with staff members during any stage of project planning or data collection.

3. **Formal training.** Formal, as opposed to informal, training, requires organization and preparation. The training goals and learning objectives are formulated and a training design is developed to achieve the objectives. Also, materials have to be prepared and a range of logistics taken care of before the training can be done.

Demystifying Evaluation, published by World Education, one of the references listed in the Bibliography, is a useful additional source of information if you are planning a staff workshop on evaluation.

Since training and staff development are priorities at CARE, resources are likely to continue to be available to train staff. You can use the content of this manual to design workshops and other training events at international, regional, or country office levels.

4. **Preparing for external evaluation**. You can also use this manual to prepare staff members for an external evaluation by orienting them to data collection and analysis issues. This can help you become "informed consumers" of external evaluations. You should be able to better negotiate with the external evaluators what information is needed and how to gather and analyze data.

At the end of this manual there is an annotated list of references for the topics covered in each chapter. You may be interested in a particular concept or method that is not covered or is covered in too little detail. If this is the case, use the references to help you learn more about some of the following topics:

Data collection techniques. Although this manual contains techniques most commonly used by CARE-managed projects, it does not desecribe techniques such as mapping, diaries, creative expression, case studies, and story telling. For more information on these and other methods, especially methods that involve village people in their own data collection and analysis, consult Lyra Srinivasan's *Tools for Community Participation* and Marie Therese Feuerstein's *Partners in Evaluation*.

Experimental evaluation design. CARE rarely uses experimental evaluation design or control groups. For those interested in time series designs, pre-post test designs, and how to randomly assign control groups refer to Fitz-Gibbons and Morris, *How to Design a Program Evaluation*.

Statistical analysis. Chapter Eight of this handbook defines statistics, discusses sampling to some extent as well as how to use percentages, proportions, rates, and frequency counts. Descriptive statistics such as means, medians, modes, percentiles, standard deviations, and normal distributions (bell-shaped curve) are mentioned only briefly. Tools used for inferential statistics like confidence intervals and significance tests are are not discussed. For more detail on statistical analysis, see references listed in Chapter Eight.

Qualitative analysis. Analysis of qualitative data can be a complex task. This manual suggests several ways to go about analyzing and presenting qualitative data. Case analysis, content analysis, inductive analysis, and logical analysis are not discussed. Several of the books listed in the Bibliography present more information on these kinds of analyses.

Presentation formats. Frequency distributions and basic graphs and charts used to present data are examined in some detail. This manual does not, however, touch on histograms, whisker charts, box plots, or distribution curves and graphs. If you wish to learn more about these ways to present information, consult Sage Publication's *How to Analyze Data*, by Fitz-Gibbon and Morris.

CHAPTER TWO

PREPARING FOR DATA COLLECTION

Data must be collected, analyzed, and used at several different points during a typical project. This chapter reviews CARE's project stages and discusses the more common types of data collection activities, and when they might occur during a project. It then describes a planning process and implementation schedule for data collection.

A. Stages of a Project

CARE's Program Manual defines seven stages to a typical project, although CARE recognizes that the timing of these stages within projects varies considerably from project to project and from country to country. The seven stages, each of which involves some level of data collection or evaluation, are described below. *Data collection activities* are *italicized*.

1. **Conceptualization**, the first stage, helps the CARE country office decide if more design work is needed. The document for this stage is a concept paper.

   - *A situation analysis is carried out* and the problem and its major causes are identified.

   - The strategy to address the problem and its causes is described. The strategy includes the final and intermediate goals and major activities that must be accomplished to achieve the goals. The concept paper describes *the approach to evaluate the project*, general resource requirements, a rough budget, and project operations.

2. **Definition.** This second stage builds on the work done during conceptualization. The problem, its causes, and the project strategy are further defined.

During this stage, the project proposal is prepared and submitted for funding. In most cases, funding is secured during this stage. Resource requirements are determined and the financial plan is further refined.

- *Final and intermediate goals are quantified and indicators developed* for each goal. The project's activities are defined in greater detail and outputs are developed for the activities.

- *Plans to evaluate the project are spelled out.*

3. **Operational planning.** This stage is usually undertaken once the project is funded. The detailed implementation plan is prepared, *including plans for data collection.*

   - *A baseline survey is conducted* and the findings are used to quantify the indicators for the final and intermediate goals. In some cases the baseline survey is undertaken only after the project has begun.

   - The implementation plan and schedule are developed. The financial plan, including the budget and various worksheets, is prepared. The project's management information system is described in detail.

4. **Start-up.** The start-up stage represents the period of time between planning to become operational and actually becoming operational. Management and information system and financial systems are set up and put in place. Project staff not already in place are recruited, hired, and trained. Materials and equipment necessary for implementation are ordered and purchased.

5. **Execution.** In this stage project activities are implemented and *monitored.* Project Implementation Reports are prepared. *A midterm evaluation is carried out* and the strategy is adjusted in response to the findings of this evaluation.

6. **Closure.** During this stage the project activities and funding come to a close. The *final evaluation takes place and the final evaluation report is prepared.* It is possible that the project gets refunded or modified and replicated in other places. If so, the project continues in the execution stage.

7. **Post-project.** Follow-up at the post-project stage is often not feasible. However, at some point after the closure of the project, *the long-term impact and sustainability of the project is assessed* whenever possible. Further conclusions about the project and lessons learned are drawn.

B. Data Collection Activities

Data are not restricted to figures but may be descriptive as well (see Glossary). CARE-managed projects have traditionally used the following types of data collection: situation analysis, needs assessment, baseline surveys, monitoring, evaluation, and rapid appraisals. They are described below.

1. **Situation analysis**. This is a broad data collection activity that provides information about the project setting. It helps the project planner learn about the project participants, their community, and problems they have. A situation analysis usually examines the following:

   - population characteristics;
   - social, physical, and economic setting;
   - existing resources;
   - present, past, and future work on community projects;
   - community leaders and organization structures.

   During a situation analysis, data can be collected directly from communities and people living in those communities and/or from existing documents such as proposals or government records.

2. **Needs assessment**. Needs assessment is a specific data collection activity that focuses on identifying unmet needs of the project participants. Needs are often categorized according to three types:

   - Felt need: what people say they need.
   - Relative or real need: the gap between what people have in different geographical areas.
   - Normative need: the gap between what people should have and what they actually have as determined by some standard or authority.

   Needs assessment is used to help identify the problems the project plans to address. The data can be gathered directly from project participants and from documents.

3. **Baseline survey**. A baseline survey, usually a questionnaire survey done before the project begins, is essential to establish pre-project conditions. The information is used to assign numerical values to indicators of final and intermediate goals. Later, data collected during evaluations are analyzed and compared to the baseline measures to determine whether any changes in the original conditions have taken place. This helps determine if progress has been made in accomplishing the goals.

4. **Monitoring**. Monitoring is the systematic and on-going collection and analysis of data which provides valuable information for managing the project. Monitoring tracks activities and outputs. Monitoring information is compared to project plans to identify what progress is being made and what problems exist. Information from monitoring systems helps project management make decisions.

5. **Evaluation**. Evaluation is a broad data collection activity that investigates the project's design, implementation, and results. It accomplishes several purposes:

   - Identifies weaknesses and strengths
   - Determines progress towards achieving goals
   - Determines results, both positive and negative
   - Identifies lessons learned
   - Makes judgments about the potential for sustainabilty and substantial impact on people's lives
   - Provides recommendations for improving the project
   - Satisfies the stakeholders.

6. **Rapid appraisals**. These are quick and inexpensive data collection activities that provide timely and relatively accurate information to project staff. Data are gathered and analyzed quickly, making information available to the decision maker when it is needed. They are relatively inexpensive because sample sizes are small and data collection techniques are not complicated and do not require outside help to develop and use. The results are relatively accurate, meaning confidence level might be 80 percent instead of 95 or 99 percent because a small sample was taken; a confidence level of 80 percent is good enough to make most management decisions.

   Common techniques used in rapid appraisals are these: key informant interviews, focus group interviews, community meeting interviews, observation, and questionnaire surveys using purposive sampling. These techniques are described in some detail in Chapter Four.

C. When Should Data Be Collected?

Data are collected, analyzed, and fed back into the project. The information is used to design and plan the project, track progress towards achieving outputs and goals, and evaluate the project's impact and potential for sustainability. Figure # 1 shows when a particular data collection activity might be conducted during the stages of a project.

Figure # 1

Data Collection Activities Related to Project Stages

PROJECT STAGE	*DATA COLLECTION ACTIVITY*
Conceptualization	Situation analysis* Needs assessment*
Definition	Situation analysis** Needs assessment**
Operational Planning	Situation analysis*** Needs assessment*** Baseline survey
Start-up	Baseline survey
Execution	Monitoring Mid-term evaluation Rapid appraisals
Closure	Final evaluation
Post-project	Post-project evaluation

* You can conduct a situation analysis and needs assessment during conceptualization if you have enough time and funds. This information makes a much stronger concept paper. If not, use data from documents. In either case, describe the project setting, identify the problem the project intends to address, and defend the strategy.

** Some sort of situation analysis and needs assessment should be conducted during the definition stage to give project planners information to prepare the proposal. If there is a shortage of funds and time, data can be obtained from documents and interviews with key players.

*** A formal situation analysis and needs assessment can be done in the operational planning stage if these assessments were not done earlier and if this information is critical to proceed with implementation.

D. Planning

To prepare for and guide any data collection activity, it is important to develop a plan, a preliminary implementation schedule, and a draft budget. The following eleven questions can help you in your planning. Answers to these questions should give you a framework as well as a basis for determining what resources you will need. They will also give you the necessary information to complete CARE's Terms of Reference form for the data collection activity. (A copy of this form is included as Appendix A.)

1. **What is the purpose?** Establishing the purpose of the data collection activity is important because it gives direction. There are two steps: First, determine what sort of data collection activity is required; second, develop the objectives of the activity. This will help you determine key stakeholders and who is responsible for the data collection activity.

   Define objectives. Define the objectives of the data collection activity. Try to answer these questions:

   - How will the information be used?
   - Who will use the information?
   - What are some of the possible outcomes of using the information?

   Answers to these questions can help you write clear objectives, which helps focus the data collection activity.

   Determine the data collection activity. Information you need for a particular stage of the project determines the data collection activity. The activity could be a needs assessment, a baseline survey, an evaluation, or some other data collection activity depending on the stage.

2. **Who are the stakeholders?** Stakeholders are key players who are affected by the findings of the data collection activity. Who they are depend on the kind of activity and its objectives. Project planners might be most interested in the findings of a situational analysis or needs assessment while donors and counterparts might be more interested in the results of a mid-term evaluation. Typical stakeholders include the following:

   - Project participants and community leaders
   - Counterparts and cooperating agencies
   - Project manager
   - Field staff

- CARE country offices and headquarters staff
- Donors
- Board members.

Then decide which of these stakeholders will provide input. Usually more than one stakeholder uses results to make decisions. It is good practice for all the key players to provide basic input into the activity's design. Be careful with how many people get involved. Experience shows that the length of the design phase increases with the number of stakeholders giving input. Decide ahead of time who to involve.

3. **Who is responsible?** One major decision to make early on is to determine who is responsible for managing and carrying out the activity. This doesn't mean who actually collects the data in the field. It means deciding who is responsible for making sure data are collected and analyzed and the results reported.

   The type of data collection activity, its objectives, and the stakeholders help answer this question. To be sure the quality of the data is good, the person responsible for the activity should have the following qualities:

   - *Acceptability*. The degree to which the person in charge of the data collection activity is acceptable to the stakeholders is extremely important. If the person responsible is not respected by or acceptable to project staff, the likelihood of using the results is diminished. If not acceptable to donors, the results will not carry the same weight. If not acceptable to project participants, the results are likely to be unreliable. Ask yourself this question: Is the person responsible for the data collection activity acceptable to everyone concerned?

   - *Objectivity*. The goal should be to provide information that represents the "real" situation as much as possible. Sometimes stakeholders have vested interests in the results and it is hard for them to provide an unbiased view point. For example, some project managers can't be objective during a mid-term or final evaluation because they are so involved with the project. Think carefully: Can the person responsible for the data collection activity really be objective?

   - *Ability*. Be sure to assess the person's ability to carry out the data collection. Does the person have the necessary skills? Try to match the data collection activity and its objectives with the skills and abilities of the person responsible for the activity. Results that cannot be used are a waste of time and money.

   - *Experience*. Experience may or may not be related to ability. The person responsible for data collection may have the required skills and abilities but lack

practical experience. This can also result in unreliable information. Be sure this person has the right level of experience to ensure that the results are of an acceptable quality to the stakeholders.

4. **What information is required?** Be sure to specify what general information is needed. You can do this by coming up with key questions or using indicators for goals, and targets for outputs and activities.

5. **What are potential data sources?** List potential sources of data that can be used to get the information. Sources might include counterparts, field staff, village leaders, project participants, physical samples, and documents such as proposals, monitoring reports, and evaluations.

6. **Who makes and tests instruments?** You may need to devise new instruments or modify existing instruments to meet the information needs of the project. Be sure instruments are tested and adjusted before they are used to collect data. Be clear about who is responsible.

7. **Who collects data?** Will data collectors come from within or outside the project? Will they be community residents, project staff, or external data collectors? How many do you need? What sort of training do they need? Answers to these questions will also give you useful information for the budget.

8. **What level of supervision is required?** Field supervision is always necessary but is especially important if you plan to use a large number of data collectors or enumerators. Good supervision helps make sure data are reliable and problems are solved quickly.

9. **How will data be analyzed?** When you have to analyze large sets of data -- whether qualitative or quantitative -- make plans ahead of time. You may have to hire or contract an individual or group who has the capability to analyze these kinds of data. Smaller and simpler sets of data can be analyzed in-house. In any case, a plan for analysis should be developed before the information is collected.

10. **What is the time frame?** Calculate the amount of time you need for each stage of data collection:

    - Planning and designing the activity
    - Making and testing the instruments
    - Training data collectors
    - Collecting data

- Analyzing and interpreting data
- Reporting the results.

Be very clear and specific about what you expect for deadlines, especially reporting preliminary and final results. When do you need the information to make decisions?

11. **What are the reporting requirements?** Finally, make it clear how you plan to report the results of your data collection. This usually requires reporting instructions and a report format. Think about your audience. Who needs the results to make decisions? And how will you share results with decision makers?

E. Constructing an Implementation Schedule

1. **How to estimate the time needed.** To make the implementation schedule, list major phases in the data collection activity, assign estimated times to each phase, and put them together to form a time-line. This is one of the most important aspects of planning a data management activity and too often is given insufficient attention.

- *Planning*. During this phase you will answer the eleven questions posed above. CARE staff will also complete their Terms of Reference in this phase. The amount of time needed for these tasks should not be underestimated. This is especially true if more than one organization is participating in the data collection activity.

- *Design*. During the design phase you will need to determine the information needs of the project, what indicators you will use to guide data collection, data sources, and the techniques you will use to collect and analyze data.

  The amount of time required for design depends on the scope of the data collection activity and how much detail is in the Terms of Reference. For example, you can finish the design for a rapid appraisal that answers two or three specific questions in a day or two. On the other hand, you will probably need two weeks or more to design a large mid-term evaluation in which several organizations take part.

- *Instruments*. Construct your instruments after the activity is designed. What instruments you decide to use is determined by what data you need to collect, your data sources, and the data collection technique(s). Be sure to test the instruments before you use them.

The length of time you need to make and test the instruments varies depending on the amount of data and the number of data sources and techniques. A rough rule of thumb you can follow is that the time needed to make and test the instruments is 20 to 50 percent longer than the time you need to design the data collection activity. For an evaluation that took two weeks to design, you probably need another three or four weeks to make, test, and adjust the instruments.

- *Training.* If you plan to collect large sets of data in the field you need data collectors (sometimes called enumerators). You must select and train them. The amount of time you need for this will depend on the number and complexity of your instruments and how skilled your data collectors are. Experienced data collectors will take less time and do a better job.

  Generally, the larger the scope of the activity, the more time you need to choose and prepare the data collectors. Be prepared to spend almost as much time selecting and training data collectors as it took to make and test the instruments. Remember: ***Use only experienced and trained data collectors to test instruments.***

- *Data collection.* The amount of time you need to collect data depends on the number of instruments, the time it takes to administer each instrument, the size of the sample, and the time between units in the sample. Here is an example.

  In a recent mid-term evaluation, the evaluation team decided to use two instruments for collecting data: a questionnaire survey of 100 households, and 20 focus group interviews. The team estimated that it would take about 15 minutes to administer the questionnaire and about half an hour to conduct each focus group interview.

  They also took into consideration that each of the surveyors would need about 10 minutes to travel from household to household; the average time between focus group interviews would be about three hours. The team selected and trained 10 surveyors and 2 focus group moderators.

  This is how they estimated the time they would need:

  - First they multiplied the length of time needed to administer each survey questionnaire instrument (15 minutes) by the sample size (100 households). This came to 25 hours.

  - They also multiplied the time needed between each visit (10 minutes) by the sample size (100). This amounted to almost 17 hours.

- Next they added these two values [25 + 17 = 42 hours].

- Finally they divided that sum by the number of surveyors [42 divided by 10 = 4.2 hours]. So they figured it would take 4.2 hours to administer the household survey.

They did the same calculations for the focus interviews and concluded that it would take about 35 hours to complete the 20 focus group interviews. They added the two totals together to arrive at an estimate of the grand total of "administrative time" they would need: 39.2 hours [4.2 + 35 = 39.2].

This kind of calculation will give you a reasonably accurate estimate of the minimum amount of time you will need to collect data. But it is obviously not a magic formula. You will base your estimates on your own experience and that of others. You may decide to conduct the activities simultaneously. And you will consider the other variables: the seasons, the weather (it takes longer to travel in rain and may be impossible in floods); holidays and religious festivals when people will not be available for interviews; and the tasks people have in daily living (you would not try to schedule an interview with a busy mother at lunchtime, for instance).

- *Data analysis and interpretation*. The amount of time you need to analyze and interpret data is often underestimated. Analyzing and interpreting data, entails all of these steps:

  - Check quality of data (check consistency and completeness)
  - Summarize data (code and transcribe)
  - Analyze data (statistical or qualitative)
  - Present data (use tables and graphs)
  - Interpret data (give meaning to data).

Unless you plan for ample time to analyze and interpret data, you will not get the information when you need it to make decisions, and some of the data will not get analyzed. Both scenarios result from poor planning for analysis of findings.

Generally, quantitative data can be analyzed more quickly than qualitative data This is especially true if you have skilled persons to code and enter the data and conduct the analyses. Qualitative data, like quotes and descriptions, take more time to code and categorize. And because qualitative analysis takes more judgment, it usually requires more time.

CARE's experience suggests you probably need slightly more time to analyze data than you needed to collect data. Remember: ***Never underestimate the time you need to analyze data.***

- *Sharing results*. The last phase of data is sharing and using the results. You can share results in a number of ways, depending on your audience; some take less time than others. For example, you can use conferences, meetings, workshops, or videos. The most commonly used way to share results, however, is a written report.

  You can save some time by writing parts of the report while data are being collected and analyzed. Write early sections (background of the project and the methods used to collect data) towards the end of data collection. Add preliminary findings and conclusions during early stages of data analysis. Write final findings, conclusions, and recommendations after data are analyzed and interpreted.

  The bottom line is that stakeholders need results as soon as possible to make decisions. The longer it takes to get information to decision makers, the less valuable it becomes.

2. **How to determine resources needed.** Good planning helps determine what resources you need. You can calculate resources easily if you have prepared a detailed Terms of Reference and spelled out levels of effort for each phase. You can classify resources according to human resources, material resources, and logistic resources.

   Human resources. Answer these questions to determine human resource needs:

   - Who takes part in each phase of the data collection activity?
   - How much time is each person supposed to work on the activity?
   - How much training do these persons need?

   At this point, it is a good idea to calculate how much time each person must give to the data collection activity. Calculate time in hours, days, or months, depending on the complexity of the exercise. It is important to calculate time for a couple of reasons. You can identify how much time permanent project staff is expected to spend and how this affects their normal responsibilities. You can also find out how much technical specialists will cost by calculating how much of their time you need. Both will affect your budget. Similarly, you will need to decide how much training the human resources need. Calculate the amount of training in person hours or days and use these estimates to determine overall training costs.

Material resources. Estimate material resources by examining each phase and identifying what materials you need. At the same time, you can calculate costs for each material resource. This might include the cost for purchasing or renting the item. For example, if you need a mainframe computer to do statistical analyses, you may have to rent computer time from a local research institution. Figure # 2 provides an example.

Figure # 2

Estimating Material Resources Needed

PHASE	MATERIAL RESOURCES	COST
Planning	None	$___
Design	None	
Instruments	Personal computer 200 reams of paper Stencil Copy machine	
Data collector training	Flip chart paper Markers Tape Note paper and pens	
Data collection	Tape recorders Cassette tapes Water meters	
Data analysis (if complex)	Mainframe computer SPSS software Ethnograph software	
Using results	Personal computer Video camera and recorder	

Logistical resources. Logistics means getting WHAT you need to WHERE you need it, WHEN you need it, and then making sure it does what it is supposed to do. Logistical resources are items that help you do this. Consider budgeting for logistical resources like these:

- National and international travel
- Lodging and meals
- Transportation including fuel
- Per diem
- Remuneration of drivers and other support personnel
- Rent and utilities.

It is a good idea to review each phase of the data collection activity and decide what logistical resources you need.

3. **Using the time estimates to build an implementation schedule**. The time-line for the data collection activity is the implementation schedule. It describes the phase, when each phase begins and ends, and who is responsible for each phase.

   Make a preliminary implementation schedule during the planning phase and expand it as more information about activities becomes available.

   You can use the same format as you use for the project's implementation schedule, which is described in Chapter 4 of CARE's *Program Manual* under the Multi-Year Planning System. An example of an implementation schedule for a baseline survey appears as Figure # 3.

Figure # 3

SAMPLE IMPLEMENTATION SCHEDULE

ACTIVITY	Person Responsible	DATES							
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Develop survey protocol and questionnaire	Consultant	———	———						
Test/revise survey protocol/questionnaire	Project Mgr/C			——					
Hire 10 interviewers Hire 2 focus group moderators	PM			———					
Train interviewers and moderators to follow protocol and administer questionnaire/moderate groups	PM/Trainer				—				
Conduct survey, hold focus group sessions	Interviewers, Moderators					———			
Analyze data	C						———		
Plan dissemination of findings	PM/C							——	
Prepare report, recommendations	C/PM							———	
Share findings with stakeholders	PM/Home office								—
Prepare action plan to carry out recommendations	PM								—→

CHAPTER THREE

DESIGNING THE DATA COLLECTION ACTIVITY

This chapter describes four steps to follow in designing your data collection. It also gives some guidelines for determining the information needs of the project, data sources, data collection techniques, and how to develop indicators to help in gathering data. This chapter discusses how to be sure your design is valid and also offers a tool to help design the data collection activity.

A. Valid Design

A valid design is one that does what it is supposed to do, that gets the exact information needed. Here are some questions to help figure out if the design is valid:

- Are we after the right information?
- Have we developed the correct indicators to judge the project?
- Are we collecting the right data?
- Are we using the best data sources?
- What are the most appropriate techniques?

An invalid design can lead to the wrong information, too little information, or too much information. Wrong information leads to wrong decisions. Too little information is also likely to result in flawed decisions. Too much information is expensive, difficult to manage and leads to decisions that come too late to be useful.

B. Focusing the Data Collection Activity

Focusing data collection means getting what information is absolutely necessary, not more or less. Focusing also means being efficient. It is related to a valid design. If the data collection is designed to get the information needed, it is focused.

There are many ways to focus data collection:

- Goal-oriented:- using established goals, objectives, and targets to measure success.
- Decision-focused:- answering key questions to assist stakeholders in making specific decisions.
- User-oriented:- based on what project participants want to know about the project. In this approach participants may also take part not only in planning the activity, but also in collecting and analyzing the data.
- Experimental:- setting up hypotheses and trying to prove them.

CARE uses goal-oriented and decision-focused approaches most often. The goal-oriented approach refers to CARE's final and intermediate goals, activities, and outputs. The decision-focused approach takes the form of key questions that project managers, donors, and other stakeholders want to answer to make important decisions.

C. Four Steps to Design the Data Collection Activity

We have looked at the importance of a valid design and of focusing the data collection. In the pages that follow, we spell out four logical steps that help ensure that the design is valid and data collection is focused.

1. Determine what information is required.
2. Develop indicators.
3. Choose data sources.
4. Select data collection techniques.

The logic of the design steps works this way:

- Information required determines indicators. ——> • Indicators determine data sources. ——> • Indicators and data sources determine techniques.

——> ***STEP 1: Determine what information is needed. Do you need it to measure goals or to make decisions about the project? It is important to focus data collection so you get exactly what information you need.***

- *Project goals*: In this *goal-oriented approach*, project design standards like goals, outputs, and activities are used to determine if the project is making progress. CARE asks all projects to set final and intermediate goals, outputs, and activities and their targets during project design. The Multi-Year Planning System section of the Program Manual describes project design standards in detail.

- *Key questions*: Using key questions to find answers to important questions about the project is a more *decision-focused approach*. The answers provide the basis for making decisions. Key questions are questions stakeholders have about the project. You can ask key questions about the project's design, how its strategy has been implemented, and results achieved. Key questions should have these characteristics:

  - Be clear and precise
  - Be useful to the information needs of the project
  - Provide an answer not already known
  - Be possible to answer given the resources available
  - Be devised in such a way that the effort required to find the answer to the question is worth the value of the answer.

  A well-written key question tells you what data to collect and analyze, and how to use that information to improve the project. You can use key questions for any issue. You may, however, find it helpful to use a framework for organizing questions. The Program Manual outlines four major issues to help come up with key questions.

  - *Project design*: How well is the project designed? How appropriate are the project's goals? Are the project's activities, outputs, and targets enough to achieve the intermediate goals? How effective is the strategy? How effective was the monitoring system at providing timely and accurate information? Is the project design sustainable?

  - *Process*: How is the project carried out? Are the project participants involved in decision making? How much time does field staff spend in each community? How often is field staff supervised? Do project participants use

the services provided by the project? What do the counterparts think about the project? What steps are being taken to sustain the project's impact?

- *Product:* How effective was the project at achieving the intermediate goals? What were the outputs of the project? How do the actual outputs and activities compare to what was planned? What are the unplanned outcomes of the project? How sustainable are the planned outcomes of the project?

- *Cost analysis*: How cost-effective is the project strategy? What alternative strategies would be more cost-effective? How effective is the strategy at recovering costs? What are the economic, social, and financial costs and benefits of the project? How sustainable are the benefits? How reasonable are the benefits in light of the costs? What is the cost per project participant? Because cost-benefit analysis can be complex, you may want to call in a specialist or refer to Henry M. Levin's *Cost Effectiveness* (Sage) or Robert R. Nathan's *The Cost-Effectiveness Analysis Field Manual* (PACT).

——> ***STEP 2: Develop indicators and their measures. What do you need to know to say whether a goal was achieved or a key question answered?*** We use indicators as standards to make judgments about project design and key questions. They also help focus data collection by telling us what data to collect.

o Use **indicators** for measuring goals and answering questions. CARE asks that final and intermediate goals have indicators and that outputs and activities have targets. Although it is not really necessary to have indicators for key questions, CARE has found that indicators for key questions can also be helpful. The term has been variously defined. At CARE, we use this definition of an indicator for goals: *An indicator is a measure used to ascertain or verify that a postulated change has occurred and thus whether a given final or intermediate goal has been achieved.* The indicator, in itself, does not necessarily comprise the entire nature of the change effected, but suggests that a change has occurred; several indicators may describe various aspects of the change, which may be expressed in percentage, in absolute numbers, or in qualitative terms:

  - Percentage of seedlings survive one year after planting
  - Number of km. of new windbreaks planted annually after June 1996
  - Number of couples continue to use family planning methods
  - Improved water system in number or percentage of villages.

- **How do you develop indicators?** We use indicators to help measure final and intermediate goals and to answer key questions. The following examples may help you develop indicators for goals and key questions. Here is one for developing indicators for the intermediate goal of a Primary Health Care project:

  Intermediate goal: To increase the number of households that practice improved hygiene practices from "x" to "y" by 1993.

  Indicators: These conditions will give an idea whether hygiene practices have improved:

  - Keeping soap near the water basin
  - Keeping the water jar covered
  - Keeping cooked food covered.

  Indicator measure: In this instance, we use "number of households" as the measure to tell how much hygiene practices improved, and write the indicators this way:

  - Number of households keeping soap near the wash basin
  - Number of households keeping the water jar covered
  - Number of households keeping cooked food covered.

Here is how indicators were developed for a key question about an Agricultural and Natural Resources project.

Key question: Do farmers follow safe pesticide application methods?

Indicators: To get a thorough understanding of methods that farmers use to apply pesticide, we can use these indicators:

- Use of safety equipment
- Use of less toxic pesticides
- Farmers' changing clothes and washing after pesticide use
- Posting fields after spraying
- Use of pits to dispose of empty plastic containers.

Indicators' measure: "Percentage of farmers" is one of several possible measures (we could also use numbers or percentage of change) to help us compare different methods.

- % of farmers using safety equipment:
  gloves
  hats
  goggles
  masks, boots, etc.
- % of farmers changing clothes and washing after pesticide use
- % of farmers using pesticides not found on W.H.O.'s list 1A and 1B
- % of farmers who post fields after spraying
- % of farmers who have disposal pits for used pesticide containers

- **What is the relationship between indicators and data?** Indicators tell us what data to collect. Data are facts, figures, feelings, and observations about the issues we are exploring. For purposes of this manual, however, we do not consider data alone to be useful information. We must first analyze and interpret "raw" data. It is this analysis that gives us the information we need to make judgments about project design and key questions. Here are some examples of raw data:

  - Responses to survey questions
  - Quotes from an interview or meeting
  - Descriptions about some behavior that was observed.

  We also use two other terms in talking about data: primary and secondary. *Primary data* are data collected for the project. We collect them for the specific needs of the project. *Secondary data* are data collected by someone else for some other purpose rather than for the needs of this particular project.

  Data come in two forms: *Qualitative data* are data in a verbal form, either quotes or descriptions. They give particular insight into how the persons providing the information view the world. *Quantitative data* are data in a form that can be counted (numerical) and that help categorize events into general descriptions.

  How do we know what data to collect? A major problem many data collection activities run into is too much data get collected. This happens because the data collection activity was not focused. Focus data collection on exactly what you need to know and not any more. In other words, ***collect only data that directly relates to indicators.***

- Use **targets** for measuring both outputs and activities. Target is a quantity measure, used to describe *how much* activities should be accomplished. For example:

Output targets:
- 345 women trained in accounting procedures
- 75% of farmers have disposal pits for used pesticide containers

Activity targets:
- 4,000 trees planted
- 64 jeeps purchased
- 19 villages visited

——> ***STEP 3: Identify data sources and determine sampling method and size. Data sources are where you get your data. In general, there are four types of data sources:***

- *People*. Asking questions of people is called interviewing. Watching how people behave is called observation. People can also be data sources for medical tests for blood, urine, feces and so on.

- *Documents*. Reports, attendance records, reference books, minutes of meetings, and proposals are sources of data we can use. Many times data from these kinds of sources are secondary data.

- *Physical environment*. This includes things like soil, water, air, plants, and trees. An Agriculture and Natural Resources project might test soil or plants for nutrients and organic matter. A Primary Health Care project could test water to discover its quality. You can also get data from things in the physical environment by observing them.

- *Man-made objects*. Houses, fences, water systems, schools, and roads can be valuable sources of data. Manufactured goods may be a good data source for a Small Economic Activity Development project. Man-made things can be tested or observed for qualities.

It is important to match the data you need to collect with the most appropriate data sources. For example, to find out the nutritional status of children in the project, is it better to ask their mothers what they eat, or to look at the children's clinic records to find out how much weight they gained?

Any consideration of data sources must also include an understanding of *sampling*, since it is often not possible nor practical to collect data from all the members of a particular source. It is too expensive and time consuming. This is especially true when

the source consists of many members such as a large population survey. It is more economical to collect data from a part or sample of the source's members and generalize the results to all members.

Sampling. Our ability to generalize accurately depends a lot on how representative the sample is of the source. You may wish to get some advice on your sampling plan from a colleague with research experience or from an evaluation specialist. Or you may find more detailed information on sampling in *The Collection, Analysis, and Use of Monitoring and Evaluation Data* by Casley and Kumar.

A sample is a part of a whole selected to represent that whole. All the members of a given data source are considered the whole. Sampling means selecting a part of all the members of the source. It is extremely important that the selected part truly represents all the members.

There is no one process for selecting samples. We should, however, follow some important steps. First, of course, decide if a sample is necessary. If the source is small enough so that data can be gathered from all the members, a sample is not necessary.

Then define the sampling frame--the list of members from which the sample is selected. The sampling frame might be a list of households, families, participants, or records.

Finally, select the sampling method. There are two general categories of sampling; purposive and probability. The category of sampling depends on what sort of information you need and whether you want to generalize the information

Purposive sampling. Purposive sampling chooses the sample based on some defined criteria. Carefully define criteria or characteristics the sample should have. Next, use your judgment to choose the members of a particular source who meet the criteria. Purposive sampling is not based on mathematical probability: it is not certain whether members of the sample represent all members of the source. Information you get from a purposive sample cannot be accurately generalized to the rest of the source.

If you want to know whether government health services are used more in isolated villages or in villages closer to the district center, you can use a purposive sample. In this case, the source is villages with a government health center. You could use these criteria to select the sample:

- Three villages with a health center more than 20 kilometers from the district center
- Four villages with a health center between 5 and 20 kilometers from the district center
- Two villages less than 5 kilometers from the district center.

You eventually select nine villages that meet the criteria. You then collect and analyze data about use of health services to determine any relationship between distances and use of services.

Probability sampling. Probability sampling is a method for selecting samples where all the members of a source have an equal chance or "probability" of being chosen. In a probability sample, there is the likelihood the sample members truly represent all members of the source and, therefore, the results can be generalized.

There are three commonly used methods to select a probability sample: simple random sampling, systematic, and stratified. The choice of method to use is influenced by how accurate you need to be, how big and diverse the population is, and how much money and time you want to spend.

1. *Simple random sampling*. Random sampling is based on mathematic probability. Each member of the source has an equal chance of being selected. You randomly choose a specified number of members from the sampling frame.

   One of the most straightforward ways to go about simple random sampling is to write the names of all the members in the sampling frame on pieces of paper, put all the pieces of paper in a container, and blindly draw pieces of paper until the desired sample size is attained.

   Another way is to use a table of random numbers. Assign each member in the sampling frame a number (1,2,3,4...). Then select one number at a time from the table of random numbers. The number from the sampling frame that matches the number chosen from the table becomes part of the sample. For example, if 10, 59, and 33 were chosen from the table of random numbers, the 10th, 59th, and 33rd member in the sampling frame would be included in the sample.

   If the sampling frame is very large, it is more efficient to use a computer program designed to select random samples.

2. *Systematic sampling*. In systematic sampling, the first member in the sampling frame is randomly chosen. Then every *n*th member is selected to be part of the

sample. This is where the term "systematic" comes from. Depending on the how big the sample is to be, every 5th, 10th, 20th, member is selected. Systematic sampling can be one of the most economic sampling methods because not all the members in the sampling frame have to be numbered and because it is not necessary to use methods (like random number tables) to randomize numbers. You can use systematic sampling to pick names or items from a list, houses in a village, or record cards from a stack.

Systematic sampling produces the same results as random sampling if the items on the list are randomly ordered. However, sampling bias can occur if items on the list are grouped according to some characteristic. For example, if you systematically select a sample of houses from a list where all houses appear by income level, you are likely to get a sampling bias. Systematic sampling can be a cheap and effective way to get samples if you can put together a list easily and if items on the list are randomly ordered. Unless you can meet these two conditions, use random sampling.

3. *Stratified sampling* is a three-step random sampling method.

   - First, organize members into subgroups that have some pre-determined characteristic(s). Subgroups represent sections of the source that you need detailed information for. In an agriculture project, sub-groups might be vegetable farmers, fishermen, and poultry producers.

   - Second, determine the sampling frame for each sub-group.

   - Finally, using simple random sampling or systematic sampling, select a sample from each subgroup.

   Stratified sampling requires grouping the source members according to some common characteristic(s). Be careful because you may need certain information that you don't have.

What is the correct sample size? The sample size depends on how precise you want to be, how common the situation you're investigating is, and how much data you have and what kinds of statistical analyses you plan to do.

Two factors determine precision: confidence level and margin of error. We state the amount of confidence in our sample as a percentage. A 95 percent confidence level means that for every 100 times a sample is drawn, it truly represents the population 95 times. Margin of error refers to how much the sample varies from the

population. Level of confidence says in the long run what the margin of error is. The more precision you want, the larger the size of the sample must be.

Another important issue to consider about sample sizes is the probability of finding the situation or condition you are looking for. Here is an example.

> Researchers are interested in investigating the clinical types of family planning methods used in two countries. In the first country, family planning is not encouraged; as a result, contraceptives are rarely used. The second country promotes family planning and prevalence rates are very high. Population size in both countries is about the same. The sample size for the first country is larger than that for the second country because there is less probability of finding contraceptive users. A larger sample is required to ensure that the contraceptive users in the sample are representative of the entire population.

The kind of statistical analyses we want to do is related to the probability of finding the situation or conditions we are looking for. If we want to make reliable generalizations to the population, we need to observe situations or conditions in the sample a number of times. Here is another example.

> Two groups of researchers are investigating causes of child diarrhea. The first group is investigating five causes and the second group is examining only two of these causes. The researchers investigating the five causes of diarrhea, everything else being the same, need a larger sample than researchers investigating only two causes. The probability of the two causes being observed is higher than the probability of observing five causes. The size of the sample must then be larger for the group of researchers looking at five causes of child diarrhea.

Note that the size of the population or source does not directly determine the sample size. It is a mistake is to calculate the sample size based on the size of the source without considering the points mentioned above; a sample size of 20 percent may be too large in some situations and too small in others.

How large a population is and how much it is alike helps determine the sample size. The larger the population the more likely you will find the situation or condition you are looking for. You can use a smaller sample. You need a larger sample if the population is small and the chances of finding what you are looking for is less.

The more alike members of the source are, the more likely it is that the sample represents all members of the source; therefore, you need a smaller sample. On the other hand, it is less probable to find what you are looking for if members of the population are different. In this case, you need to use a larger sample to make sure you find what you are investigating.

In summary, touch base with the donors and counterparts to find out how much precision they believe is necessary, then work with a statistician to determine how large a sample you need.

What is sampling error? Sampling error or bias is a mistake that occurs when the sample is selected. A certain amount of sampling error is inevitable and acceptable. It occurs from mistakes in data entry, differences in the way questions are phrased or interpreted by either interviewers or respondents, and other inconsistencies in training enumerators, field staff, and others. Sampling errors cause the results to be different than if you had collected and analyzed data from all members of the population or source.

BEWARE of SAMPLING ERRORS

- Be sure the sample is large enough.
- Include all members of the source in the sampling frame.
- Read the random number table carefully.
- Choose members from the sampling frame correctly.

So much for our discussion of data sources and how to choose your sample. We turn now to the final step: choosing data collection techniques.

——> ***STEP 4: Choose data collection techniques, the methods you will use to collect data from the data source.*** The techniques more commonly used to collect data in CARE-managed projects are these: interviews, observations, document reviews, technical studies, and measurements. These techniques are discussed in detail in Chapter Four.

Always determine indicators and their measures and identify the data sources before choosing a data collection technique. This helps ensure there is an appropriate match between the technique and the data you want to collect. ***Remember, let the indicators and the data source determine the technique.***

A word of caution. Using two or three well-chosen techniques can improve the quality of the information you end up with. But using too many techniques and tools can make it hard to manage an activity and to analyze data. Use an appropriate mix of techniques, but be judicious.

D. Getting Organized

Below is a handy tool you can use to organize your data collection. It is a simple matrix with four cells:

Intermediate Goal or Key Question	Indicators	Source of Data	Data Collection Technique

Figure # 4 on the following page gives examples for four of CARE's sectors: PHC (Primary Health Care), ANR (Agriculture and Natural Resources), SEAD (Small Economic Activity Development) and FP/Pop (Family Planning and Population).

Figure # 4

SAMPLE DESIGN MATRIX

Information Needs (Intermediate Goal or Key Question)	Indicators	Data Source	Technique
PHC Intermediate Goal:			
To increase percentage of households that improve hygiene practices from x to y percent by 1993	% of households: - keeping soap near wash basin - keeping water jar covered - keeping cooked food covered	Random sample	Observation
ANR Intermediate Goal:			
x number of farmers in project area implement farm-level methods of reducing wind erosion and blowing sand in upland fields by end of project	x number of farmers have set up and managed field boundaries of andropogon gayanus (or other grass or shrub species on at least one agricultural field)	Records of extension agents Systematic sample of participating farmers	Document review Questionnaire survey
SEAD Intermediate Goal:			
Responsive, viable credit system operating within x number of Co-op Rural Banks lending to y number of women participants each year by end of project	x number of loan applications from women successfully processed	Loan records	Document review
FP/POP Key Question:			
Were the family planning services that were provided affordable and of high quality?	% increase in women attending clinic	Clinic attendance records	Document review
	% of participating women satisfied with services	Random sample	Open-ended interviews
	Specialist(s) report services are of high quality	Family planning consultant(s)/ Consultant reports	Key informant interview/ Document review

CHAPTER FOUR

CHOOSING DATA COLLECTION TECHNIQUES

This chapter examines several common techniques used to collect data for CARE-managed projects as well as sample instruments for these data collection techniques: interviews, observations, document reviews, technical studies, and measurements. The actual making and testing of the instruments is covered more thoroughly in the next chapter.

A. Interviews

When we ask questions and people answer them it is called an interview. The person asking questions is called the *interviewer* and the person answering questions is called the *respondent*. The interviewer records the answers by writing them down or tape recording them. You can conduct interviews in different settings. Interviews can be structured or unstructured, be used for a group or an individual, and can be used to obtain qualitative or quantitative data.

The most common kinds of interviews are focus group interviews, key informant interviews, conversational interviews, group meeting interviews, and questionnaire surveys. These are described below.

1. **Focus group interviews**. A focus group is a group interview. With the leadership of a trained moderator, the group discusses and comes up with ideas, reactions, or recommendations about things they are talking about. You select members of a focus groups based on some set of criteria that makes the group similar or homogeneous. The criteria you will use depends on the discussion topic. If you

want to talk about sex, divide women and men into different groups. If vegetable gardening is the topic, choose members who have vegetable gardens.

Experts recommend that focus groups have between six and twelve members. More than twelve is difficult to manage and some members may not have the chance to participate. With fewer than six, members may not feel comfortable enough to talk about their opinions and ideas.

You need someone to moderate or facilitate the focus group interview. The moderator is responsible for ensuring the following:

- The discussion does not stray from the topic
- Some members don't talk too much and others too little
- Points are made clear
- The meeting begins and ends on time.

You will also need someone to record the discussion, either by using a tape recorder or taking notes. If you want the discussion to be recorded by hand, you must appoint someone to take notes. This person needs good listening and writing skills.

The focus group interview gives you a lot of qualitative data about how the group members feel about the topic(s) they are discussing. Some of the reasons to use focus group interviews:

- To develop messages for communication or social marketing strategies
- To test messages or other educational materials
- To understand how project participants feel about services
- To identify reasons for problems in the project
- To determine areas to focus the data collection activity on.

Keep in mind the limitations of focus group interviews. You will not be able to generalize findings because the members are not selected based on mathematical probability. Nor should you try to quantify responses or generalize them to the population. For example, it is inaccurate to say that because 25 percent of the focus group members reported they use a family planning method, you can conclude that 25 percent of the population uses a family planning method.

In planning and conducting focus group interviews, follow these steps:

- *Develop the focus group interview guide and protocol.* The guide contains the questions the moderator is to cover during the interview. Relate questions to the

data that needs to be collected to answer key questions. The protocol is the set of instructions the moderator follows during the interview.

- *Select the sample to be interviewed.* It is better to use purposive sampling instead of probability sampling. Do this by making a list of selection criteria; then select the sample based on these criteria. Your goal is to have a sample that is as homogeneous as possible based on the topic you want to talk about.

- *Select and train the moderator.* The moderator should possess many of the skills that a good trainer has. Make sure the moderator is a good facilitator capable of pacing and controlling the interview as well as managing the group. You will need to train the moderator unless the person has experience conducting focus group interviews.

- *Decide how to record the interview.* You can tape record the interview or take notes. If you use a tape recorder, make sure the person responsible knows how to operate it and that a back-up recorder and spare batteries are on hand. Also, the moderator should make the members of the focus groups feel comfortable with having the interview tape recorded. If you decide to take notes, make sure the note taker records mostly quotes from the members, and avoids paraphrasing as much as possible.

- *Decide the time and place of the interview* and communicate these to the members of the focus group. Be sure the location is comfortable and acceptable to all the members, with minimum distraction. Check the dates carefully to make sure there is no conflict with other events such as festivals, community projects, or other work.

A sample focus group guide appears as Figure # 5.

CODE_____

FOCUS GROUP GUIDE FOR SAVINGS AND LOAN COMMITTEE

Name of moderator_____ Date _____

Name of observer_____ Name of community _____

Names of participants_____

INTRODUCTION TO FOCUS GROUP. Serve participants coffee and snacks and introduce participants, moderator, and observer. Explain purpose of focus group meeting and explain the group norms. Make these points:

- Everyone should participate.
- We should not interrupt when someone is speaking.
- We should not judge someone else's opinion.
- We should not dominate the conversation.
- We should be honest; speak our minds.

Explain the purpose of the observer in the room and that a tape recorder is used to remember what is said so it can be shared with others who are interested. Emphasize that their names won't be associated with the voices on the tape.

Allow the participants to examine the tape recorder. Record several of the participants' voices and play it back to them.

CONDUCTING THE MEETING. Post and read the first focus group question: "What do you like about being a committee member?" Be aware of the following:

- Over-participation. If one or more participants are dominating the discussion, remind them of the group norms. Try to refocus the discussion on the under-participators.

(Figure # 5 continued)

- Under-participation. If one or more participants are not participating in the discussion, try to draw them into it by asking what they think about the issue being discussed.

- Clarification. If incomplete or vague comments are made, ask the person to explain the point in more detail.

- Focus. If the discussion gets off track or strays from the focus group question, remind the participants that the task is to discuss the question. Restate the question to the group to refocus its attention.

- Silence. Silence can be insightful and should be noted by the observer when it occurs. However if participants are not responding, it may be that they do not understand the question or feel uncomfortable responding. In this case, rephrase the question and wait until someone replies.

Note to the facilitator: Your task is to facilitate discussion and keep it focused on the question. It is essential that you avoid expressing your opinion or interacting in any way other than clarification and feedback to participants.

Note to the observer: Your task is to observe unobtrusively and note non-verbal communication and behavior during the meeting for both participants and facilitator.

Post and read the second question: "What do you not like about being a committee member?"

Post and read the third question: "In what ways has your committee worked with the bank?"

CONCLUSION OF FOCUS GROUP MEETING. Gradually bring the meeting to a close. Thank participants for their cooperation and turn off the tape recorder.

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2. **Key informant interview**. A key informant interview can be either a group or individual interview. The purpose is to gain special insight or understanding into a situation or condition. You do this by choosing a sample of respondents who have a special understanding about the topic you're exploring. A sample key informant interview guide appears as Figure # 6.

Figure # 6

Code _____

Sample Key Informant Interview Guide for Community Leaders

Name of interviewer_____ Date_____

Name of community leader_____

Name of community_____

Explain the purpose of the interview. Then begin to ask the following questions.

- "How are things going with the income generating project?"

If the community leader has not talked about the vegetable gardens, ask:

- "How are things going with the vegetable gardens?"

To get an accurate count of how many families are not participating in the vegetable garden project, ask:

- "How many families do you <u>think</u> have vegetable gardens?"

To get at reasons community members may not be planting gardens, ask:

- Why do you <u>think</u> some community members are not planting vegetable gardens?

---

3. **Conversational interviewing.** Conversational interviewing is informal and unstructured. The interviewer casually asks questions and does not read from an interview guide or write down the answers in front of the respondent. The idea is to get the respondent to feel comfortable and answer the questions as honestly as possible. Some investigators prefer to tape record the responses while others prefer to record the answers later when the interviewer is alone. Each method has advantages and disadvantages. Some investigators believe responses from a conversational interview are more reliable than those from a structured interview.

   The sample can be purposive or probability and the instrument can be open-ended or close-ended, depending on whether you want qualitative or quantitative data and how important it is to generalize the results. A guide for a conversational interview appears as Figure # 7.

Figure # 7

CONVERSATIONAL INTERVIEW GUIDE FOR FARMERS

Name of interviewer_____ Date_____

Name of farmer _____ Name of community _____

A. Explain that you would like some information about the project and are also testing to see how well a tape recorder would work for this purpose. Ask if he or she is willing to discuss the project with you and if this is a convenient time. If it is not convenient, try to arrange another time.

B. Demonstrate how the tape recorder works. Record the farmer's voice and play it back. Repeat this several times.

C. Turn the tape recorder on and let it record. Meanwhile, start an informal conversation. During the course of the conversation, ask questions like these: "What are the problems that you have had in trying to use organic fertilizer?" If the farmer has not talked about whether organic or chemical fertilizer is better, you might ask: "Which do you prefer to use, organic or inorganic fertilizer? Why?"

D. End the conversation, turn off the tape recorder and thank the farmer.

---

4. **Group meeting interview**. Group meeting interviews are conducted during the course of a meeting. The group is made up of members of a community, counterparts, project staff, or others. The interviewer asks questions during the meeting. The responses are either tape-recorded or written by someone taking notes.

   In most cases, it is better to use purposive sampling. There are two questions you must answer:

   - How do I choose groups?
   - How do I choose the members?

   When you choose the groups, make sure they are representative of all groups based on some criteria.

   As far as members go, inviting all members of a particular village or neighborhood to attend a meeting is more practical than trying to choose a sample. Those who actually show up determine to what degree the group is representative of all the members and to what degree you can generalize the results. Use judgment. If you feel you have good representation from the community at the meeting, you can generalize with some degree of certainty. However, if only certain groups (young people, men) are represented at the meeting, then you cannot generalize the results with much confidence.

   Your group meeting interview can be either structured or unstructured. An unstructured interview is more spontaneous and can raise important issues not thought about previously. It is also, however, much more difficult to manage. If the interviewers are not careful, an unstructured interview can get off track and a lot of valuable time can be wasted.

   A structured group interview is much easier to facilitate and to keep the group focused on the interview questions. It has an added advantage: responses to the same questions can be compared between groups. This is much more difficult to do in an unstructured interview.

   Some general guidelines to follow:

   - Use a structured interview if the group is likely to be hard to manage or if you know what data you need.

   - Use an unstructured interview if the group is not a problem or you are unsure of what data you need.

- Limit the number of questions on the interview guide, especially if you use an unstructured interview. Each question gives you a wide range of responses that can be hard to analyze.

- Tape record the interview if data are not specific and quotes are important.

- Take notes if data are specific and if you do not need exact quotes.

- Conduct the group meeting interview when it is convenient for the members to attend. Take into account holidays, religious festivals, daily activities of the members when you schedule the interview.

- Make sure the interviewer is a good facilitator. The interviewer should ensure everyone has the opportunity to respond to the questions and express their views.

- Be careful about quantifying the results of the interview. You can count and compare responses to structured and verifiable questions like the number of schools in the community or how many members attended agriculture training courses last month. It is hard to quantify responses to unstructured questions. As a rule, do not try to quantify qualitative data.

  A sample group interview guide appears as Figure # 8.

Figure # 8

GROUP INTERVIEW GUIDE FOR WATER COMMITTEES

Name of interviewer _____ Date _____

Name of committee _____ Name of community _____

A. Explain that you would like to ask the committee members some questions about record keeping and other management skills they learned about in water committee training. Their answers will help the trainers of the committees improve the committee training.

B. Explain that you would like to record the committee's responses to be sure that you remember everything that they say. Ask if the committee members know how the tape recorder works. If not, explain how the tape recorder works and record several members' voices and play it back to them.

C. Now turn on the tape recorder and ask the following questions:

1. "What did you think of the committee training? Has it prepared you for your work as a committee member?"

2. "Please explain how to solve problems and make decisions as a group."

3. "Please explain how to manage a bank account."

4. "Please explain how to manage stock and inventory."

5. "Please explain how to manage committee finances."

6. "Please explain how to supervise plumbers during operation and maintenance."

D. End the interview and thank the committee for its participation. Turn off the tape recorder.

5. **Questionnaire survey**. A questionnaire survey is a systematic interviewing technique that uses questionnaires, respondents, and interviewers.

The questionnaire is the data collection instrument. It has a set of questions organized in a systematic way as well as a set of instructions to the interviewer about how to conduct the interview. Because the drafting of questions can be a little tricky, a set of guidelines has been provided in Appendix B. In any event, questionnaires should be field-tested before they are used, to see if any of the questions are confusing or ambiguous.

Questionnaire surveys are appropriate for several data collection activities:

- Needs assessment to prioritize unmet needs for a large population.
- Baseline surveys to establish beginning values for goals and indicators.
- Evaluation where the baseline survey questionnaire is repeated to determine progress in meeting goals.
- Rapid appraisals to answer specific questions that provide information to make management decisions.

You can make questions open-ended or close-ended. Close-ended questions have set responses and give you answers to questions like these:

- Did your child have diarrhea in the last two weeks? How many times?
- How many organized groups are present in this community? Name them.
- How many visits were made to the local agriculture center?

Open-ended questions have space for the interviewer to record exact quotes or paraphrase the respondent. Open-ended questions may have a set of response options that the interviewer chooses from, based on the respondent's answer. These response options are not read to the respondent.

- What has your organization done to resolve this situation?
- Why do you <u>think</u> breastfeeding serves as effective contraception?
- What responsibilities do you [a primary school student] have for your younger siblings?

Consider the sample size and how much time you need for analysis if you decide to use open-ended questions. These questions give you richer and perhaps more useful data but require more time for analysis. An interview with an open-ended questionnaire that takes longer than about 45 minutes is an imposition on the respondent who may also lose interest in the process.

To save time and make analysis easier, most questionnaire surveys use close-ended questions. As a rule of thumb, the actual application of a close-ended questionnaire should take only about ten or fifteen minutes.

Respondents can be either all the members of a population or a sample. The most frequently used method to choose the sample is probability sampling, which helps ensure the sample is truly representative of the population so data can be compared and generalized. (Sampling has been discussed in Chapter Three.)

The interviewer, who uses the questionnaire to ask the questions and record the answers, can use two basic types of techniques during questionnaire surveys:

- Direct interviewing, which takes place when the interviewer asks the respondent the questions face-to-face.

- Indirect interviewing, which occurs when the interviewer asks the respondent the questions other than face-to-face -- by mail, for instance, or by telephone. These methods are rarely used in developing countries.

Occasionally the questionnaire is self-administered. Respondents are given or mailed a questionnaire to complete themselves and an interviewer is not required.
There are two major advantages of using questionnaire surveys:

- They are an inexpensive, quick, and reasonably accurate way to get information from a large population, especially if you use probability sampling.

- They are a relatively effective and easy way to analyze and compare data because questions are standardized.

A major disadvantage of questionnaire surveys is that they are used too often. Data collection has come to be equated with a questionnaire survey. You can often use more practical and appropriate techniques to collect data. Also, the reliability of data is dependent on how truthfully the respondent answers questions and how consistently the interviewer asks and records the answers.

A sample household survey questionnaire developed for a Primary Health Care project is included as Figure # 9.

Figure # 9

Sample HOUSEHOLD SURVEY QUESTIONNAIRE

CODE

____

NAME OF INTERVIEWER_____ DATE_____

Ask to speak with the head of the house (male or female). DO NOT SPEAK WITH CHILDREN OR TEENAGERS. If the head of the house is not home, go to the next house on your list. If the head of the house is home, read the written introduction to him or her. If the head of the house agrees to being interviewed, read the following questions to him or her. Be sure to read the question exactly as it is written.

1. What is your house number? _____ 2. What is your name? _____

3. How old are you?_____ 4. Who is the head of your house?_____

5. Do you like to keep the water you use for drinking and cooking covered or uncovered? 5.1 covered___ 5.2 uncovered___

6. Do you wash your hands before eating? 6.1 yes___ 6.2 no___

7. Do your children wash their hands before eating? 7.1 yes___ 7.2 no___

8. Does your spouse wash hands before eating? 8.1 yes___ 8.2 no___

9. Where do you go to the toilet?

   9.1 in the field ___
   9.2 in the latrine ___
   9.3 behind the house ___
   9.4 other ___

10. Why do you <u>think</u> it's important to have a clean water supply? _____

B. Observation

Observation is a systematic method of watching or observing people's behavior or other phenomenon and recording the observations. The data collector is the observer who carefully watches what people do or watches some other event. Some examples of what you can observe:

- Mothers feeding their children
- Farmers applying fertilizer
- Producer groups keeping accounting records
- Grain storage facilities
- Women drawing water from standpipes.

You can collect both qualitative and quantitative data using observation. When you use a structured observation instrument, the observer records events as being present or absent, having occurred or not occurred, or how many times they occurred. These are quantitative data.

In using an unstructured instrument, the observer describes events in his own words. These descriptions are qualitative data. There are two primary types of observation: participant and nonparticipant.

Participant observation, relatively rare in development assistance projects, occurs when the observer lives with and takes part in the daily activities of the subjects. The participant observer may help take care of the children, cook, work in the fields, or do some other activity with the people being observed.

Those being observed generally don't know the observer is observing their behavior. That is important because you want them to go about things as they would if the observer were not there. Also, make sure the observer is careful to record the observations out of sight of the subjects. When people know they are being watched, they tend to act differently. This can give you unreliable data.

What steps do you take and what do you say to get the subjects to let the observer live with them? You can explain that you want to learn more about the community or that the observer needs to stay in the community because it is close to his or her work.

Nonparticipant observation does not require the observer to live with the subjects. The observer uses some sort of observation guide to make and record observations.

The major advantage of observation is that the data are generally very reliable. This is because observation is unobtrusive. It gives a clearer picture of the "real" situation. It is harder to get a "real" picture with interviewing techniques because people may not answer questions truthfully.

There are, however, a couple of disadvantages you should consider before deciding to use observation: cost, and the objectivity of the observer.

Some observation methods, especially participant observation, require that observers spend long periods of time in communities. This can cost a lot of money in terms of time and effort. Calculate and compare the cost of conducting observation to the value of the information you expect to get. Does the information justify the cost?

Another drawback is that the reliability of the data is dependent on the objectivity of the observer. If the observer is not objective, you end up with unreliable data. To control for this potential problem, make sure observers are carefully selected and well trained.

Field visits. Project managers often use an informal type of observation during field visits. They keep a mental check-list of events they wish to observe. After the visit, they recall the observations and discuss them with staff.

For example, you can use observation to count latrines, rate the cleanliness of households, check record-keeping systems of small businesses, estimate harvests, or determine how pesticides are stored in the home.

Photography. Another type of nonparticipant observation used in CARE-managed projects is photography. You can take before-and-after photographs of some phenomenon and examine them to determine whether any change has taken place. Or you can use photographs to make judgments about what has been photographed (e.g., houses are not well built). A participatory method for using observations of photographs is included as Appendix C.

A sample observation guide is attached as Figure # 10.

Figure # 10

Code_____

OBSERVATION SCHEDULE FOR PARTICIPANT OBSERVATION
(USE ONLY ONE PER DAY)

Name of observer _____ Date _____

Name of head of household _____

Number of people living in household _____

1. How many people did you observe today eating breakfast? _____
2. How many people did you observe today washing their hands with soap, citron, or ash before they ate breakfast? _____
3. How many people did you observe today eating dinner? _____
4. How many people did you observe today washing their hands with soap, citron, or ash before they ate dinner? _____
5. How many people did you observe today using their latrine? _____
6. How many people did you observe today washing their hands with soap, citron, or ash after using their latrine? _____
7. How many trips to get water did you participate in today? _____
8. In how many of these trips did you observe someone in your household using a clean water vessel? _____
9. In how many of these trips did you observe someone in your household covering the water vessel? _____
10. How many jars of water did the house use today? _____

C. Document Review

Document review involves collecting and analyzing data from written documents. In document reviews, we use secondary data already collected and reported. This is called secondary data because often they were gathered by someone else for purposes other than your project. Document reviews can be used in any data collection activity where secondary data is an acceptable form of evidence. A sample enumeration tally for a documentation review appears as Figure # 11.

The data source is the document we want to look at. Some examples:

- Government records and statistics
- Staff activity reports
- Monitoring reports
- Reference books
- Correspondence (letters and memos)
- Minutes of staff meetings
- Evaluation reports
- Communication and education materials.

In some document reviews, documents likely to have the data we need are identified and searched. The data collector finds the data and records them. Other times it may be necessary to select a sample because there are too many documents to review. This is especially true when you collect data from records such as growth monitoring cards or cash flow and profit/loss statements. You can use either purposive or probability sampling.

The data collector must be able to understand and categorize the document's content. The data collector may also need to conceptualize the document's content in order to interpret and describe situations.

Document reviews can be used to collect both qualitative and quantitative data. Structured data collection instruments like tally sheets give us frequency counts (number of times an event took place). Unstructured instruments are open-ended and give us descriptions, quotes, and paraphrases. The advantage of using document reviews is that you can get data quickly and inexpensively. You don't have to collect new data. On the other hand, you may not know how reliable the data are because they were collected by someone else for different purposes. Another disadvantage is that you may have problems locating the correct document and, when you do, it can be hard to find the exact data you want.

Figure # 11

Code___

Sample Tally Sheet
For Document Review
of Water Committee Reports

Name of reviewer_____ Date_____

		TOTALS (# of committees)
1.	Committees that have spent operating and maintenance (O & M) funds on spare parts.	𝍸 III
2.	Committees that have paid laborers with O & M funds.	III
3.	Committees that have spent O & M funds on administration costs.	𝍸
4.	Committees that have collected but not used O & M funds.	IIII
5.	Committees that have not collected O & M funds.	II
6.	Committees that have collected O & M funds for private water connections every three months.	𝍸 I
7.	Committees with complete O & M records.	III
8.	Committees that follow deposit and withdrawal of O & M funds according to procedures.	𝍸
9.	Committees holding monthly O & M meetings.	𝍸 𝍸 II
10.	Committees that have paid plumbers with O & M funds.	II

D. Technical Studies

Technical studies use scientific data collection and analysis methods. These methods come from biology, chemistry, or other scientific fields rather than from the social sciences. You could use technical studies to find out such things as water quality, soil nutrients, or plant disease. Consider three things when planning to use technical studies: data and data source, data collector and instrument, and data analysis.

Data and data sources. Data are the actual physical elements collected such as soil, blood, or plants (plant tissue). Data sources are where physical elements come from like farmers' fields, people, or rivers.

Typical data and data sources for technical studies: seedlings from nurseries, soil or plants from farmers' fields, water from springs, streams, or rivers, and blood, feces, or urine from people or animals.

Sometimes it may be possible to collect data from all the sources such as soil samples from all the farmers' fields in a project. This is called a complete study and sampling is not necessary. Usually, however, it is not possible to collect data from all sources. and you would use either purposive or probability sampling. For example, you could take a random sample of children between six months and two years to check their feces for diarrhea causing germs. You could generalize results to all children in the population because the sample was representative.

Data collector and instrument. It is sometimes possible to train people quickly, even those without experience, to collect data for technical studies. We can, for example, train agriculture workers to take soil samples in a short period of time. Most technical studies, however, require the data collector to have special experience. For example, special knowledge, skills, and equipment are necessary to collect and manage blood, feces, soil, and water samples.

Analysis. Analysis of data from technical studies require higher technology than data from social science studies. Biological or chemical analysis of plant nutrients or diseases, for example, requires using laboratory technology. You will need specially trained persons and appropriate equipment in order to analyze data for most technical studies.

Technical studies can be expensive, but may be the only way to get the information you need. The following questions can help you decide if you should use a technical study:

- Is the information worth the cost of the study?

- Can physical indicators be used instead of a technical study? For example, smell, taste, and color of water may be enough physical data to determine water quality so that more sophisticated water testing is not necessary.

- Are qualified and reliable data collection and analysis facilities available? CARE experience has shown that some countries just do not have reliable data collection and analysis facilities. Check these out before you decide to conduct a technical study.

E. Measurements

Measurements determine quantities like how much or how many. Different kinds of measurements are used for each sector. For example:

- CARE's Agriculture and Natural Resources sector uses surveys and mathematical formulas to measure crop and production yields.

- The Primary Health Care sector uses weight, height, age, and arm circumference to measure nutrition status.

- The Small Economic Activity Development sector uses production figures to measure household security and income.

- The Population and Family Planning sector uses couple-years of protection (CYP) to measure contraceptive use.

Measurements, like technical studies, require the data collector to have skills and experience in using the instrument. For example, the data collector must know how to take weight and height measures and record these or how to estimate area, production, and yields and calculate these using mathematical formulas.

Capable data collectors can be trained reasonably quickly for most measurements, but should be carefully supervised throughout data collection.

CHAPTER FIVE

MAKING AND TESTING DATA COLLECTION INSTRUMENTS

This chapter discusses commonly used data collection techniques and gives examples of instruments for each technique, and describes the testing of instruments.

A. Should Existing Instruments Be Used?

There is really no definite answer to the question of whether or not you should use an existing instrument. The more important point to remember is that the instrument should be designed to get only the information you need. If an instrument exists that is designed to get the kind of information you want, you can probably modify and use it. This can save both time and effort. If the instrument does not yield the information you need, it is not valid and should not be used.

A valid instrument is one that measures what it is supposed to measure. Here are some examples of invalid instruments:

- IQ tests to measure creativity
- Knowledge tests to measure behavioral change
- Weight scales (weight-for-age) to measure how well someone does in school.

The problem with using an existing instrument is that it was designed for someone else's information needs and may not be valid for you. An invalid instrument results in questionable data, which is a waste of time and money.

You can help ensure validity by allowing information you need to determine the instrument. This is done by using the indicators or targets to come up with questions on the instrument. The logic works this way:

- Information needs determine the criteria (indicators and targets).
- Indicators and targets determine questions on the instrument.

You can probably use an existing instrument if you can adjust it to fit your information needs. Otherwise it is better to go ahead and make new ones.

B. How Are Instruments Made?

You can follow these steps to construct an instrument: Determine the technique and instrument you want to use; determine questions for the instrument and order them; decide what other information you need; write the protocols; determine the question format; prepare the instrument; and finally, translate the instrument. These steps are described below:

——> ***STEP 1: Determine what technique and instrument you want to use.*** Data collection techniques and instruments are not the same. The technique is the method and the instrument is the specific tool used to collect data. The technique does, however, determine what instrument you use. Below are some examples of techniques and their instruments.

TECHNIQUE	INSTRUMENT
Focus group interview------->	Discussion guide
Conversational interview---->	Interview guide
Questionnaire survey-------->	Questionnaire
Observation---------->	Observation guide or check list
Document review---------->	Tally sheet
Technical study----------> (water analysis)	Water testing kit
Measurement----------> (growth monitoring)	Weighing scale

Questions (for interviewing, observation, and document reviews) can be closed or open-ended, depending on whether you want qualitative or quantitative data.

——> ***STEP 2: Determine questions for the instrument.*** Use the indicators and targets to come up with questions for the instrument. There should be one or more questions for each criterion. For example:

INDICATOR	INSTRUMENT QUESTION
Number of households that cover their drinking water containers.	1. Do you like to keep the water you use for drinking and cooking covered or uncovered?
Number of residents who wash hands before eating.	1. Do you wash your hands before eating? 2. Do your children wash hands before eating? 3. Does your spouse wash hands before eating?
Number of residents who use a latrine.	1. Where do you go to the toilet?

Again, make sure that questions for instruments are simple, specific and to the point, and test them to be sure that they evoke the kinds of information you are looking for.

——> ***STEP 3: Order the questions.*** Once you've formulated the questions, arrange them in logical order. Although there is no rule for arranging questions, use common sense. Before asking whether latrines are used, ask if the household has a latrine. Before asking mothers if they give liquids and food to their children when they have diarrhea, ask them if they have young children.

——> ***STEP 4. Determine other information you need.*** In addition to the questions, now is the time to add any other kinds of information you want:

- Name of data collector
- Date
- Instrument code
- Name or number of source (respondent, household, or document)

- Name of village, township, and district or department
- Head of household
- Number of family members in household.

Remember to leave space for comments.

——> ***STEP 5: Write protocols.*** Protocols are instructions to the data collector. Explain how the data collector should use the instrument and what to do in certain situations. Protocols can be organized into four general areas which are discussed below. Answers to the questions that follow can help you write the protocols.

- *Procedures for collecting data.* Which person in the household will be interviewed? What should interviewers say to get permission to interview? Will they explain the purpose? If so, what will they say? How will they gain access to what they are supposed to observe (grain storage, accounting records, water containers)? During observation, will the interviewer explain the purpose of the observation, or talk about something else?

- *How to record data.* What if the response given is not one of the response options on the instrument? What if the interviewer does not understand the response? What if respondents change their original response? What if a family member tells the respondent what to say?

- *In what order to collect data.* How does the interviewer know when to skip an irrelevant question and go to the next one (when, for instance, to skip "latrine use" if the family has no latrine)? Will the instructions to skip irrelevant questions be on the instrument? Will arrows be drawn on the instrument to show the interviewer where to skip to?

- *How to deal with unexpected events.* What if no one is at home? What if the person you want to interview is not at home? What if most of the respondents are at a community meeting? What if respondents refuse to talk? What if the interviewer finds out that a household in the sample doesn't exist?

——> ***STEP 6: Determine the question format.*** Decide how the responses should be recorded. Possible question formats include the following:

- *Yes or No*: "Do you think the project is helping the people in your community?"

  Yes ___ No ____

- *True or False*: "The correct way to mix ORT is to add four spoons of sugar to six liters of water."

  True ___ False ___

- *Multiple choice*: "Where do you go to the toilet?"

  In the field ____ In the latrine ____
  Behind the house ____ Other (specify) _____

- *Rating scale*: The businessman's account ledger was

  In good order 1 2 3 4 5 In poor order

- *Rank-order scale:* "Why is it important to bathe your child every day?"

  Mark *M* for the MOST important reason. Mark *L* for the LEAST important reason.

  To prevent disease ____
  To look nice ____
  To make the child feel comfortable ____
  Neighbors will think bad of me if I don't ____

- *Numerical fill-in*: "How many hectares of land do you own?" ____ ha.

- *Open-ended:* "Why don't you have a vegetable garden?" _____

  _____

——> ***STEP 7: Make the instrument.*** To construct the instrument, combine questions and question format, protocols, and additional information you may wish to include. Examples of instruments appear with the discussion of data collection techniques in Chapter Four. Go back to Chapter Four, look at the instruments again and think about how they were made, based on the steps described in this chapter.

——> ***STEP 8: Translate the instrument*** into the language of the users. Be sure to check and adjust the accuracy of the translation during the testing phase.

C. How Should Instruments Be Tested?

1. **Check validity and reliability.** Test instruments before you use them. The main purpose of testing is to check validity and reliability.

   - If the instrument is valid, it measures what it is supposed to measure.
   - If the instrument is reliable, the data collected do not vary depending on who collected them.

   If instruments are not valid and the data not reliable, you have wasted time and money because you cannot trust the results.

   When you test instruments, check validity and reliability by finding out the answers to these questions:

   - Did the data collectors understand how to use the instruments?
   - Did respondents understand the questions?
   - Were data such as responses and descriptions consistent from one source to another?
   - Did the instrument take too much time, too little time, or about the right amount of time to administer?
   - Did data collectors have problems using the instruments? If so, what?

   Finally go over any problems the data collector and respondents had during the testing, and readjust the wording, reorder the questions if necessary. Again, make sure the questions are clear, simple, and appropriate.

   You can also use testing to come up with options for multiple-choice questions. During testing, data collectors ask open-ended questions or describe behaviors. After testing, identify recurring responses or descriptions and use these to develop close-ended or structured response options. If, for instance, testing reveals that farmers practice only three types of soil conservation, you can use this information to formulate a close-ended question about conservation practices with three specific response options.

2. **Choose the sample for testing**. Try to carry out the field test with a sample similar to the sample you plan to collect data from later. However, make sure the sample for testing is not the same one you use for data collection. If the study sample is used, people end up being interviewed or observed twice; once during testing and again during data collection. This can make your data unreliable.

   Use the same method to select the sample for testing as you would use to choose the sample for collecting data. The type of sampling you use and the sample size depends on two things:

   - How much confidence you need in the testing results
   - How much time, money, and effort you want to invest.

   Although a large probability sampling will give you a much more accurate picture of validity and reliability than a small purposive sample, you probably won't need this much accuracy. You may not be able to afford it either. In most cases, a well-planned purposive sample is good enough. Make sure the testing sample is reasonably representative of the data collection sample.

   A sample of 10 to 20 interviews is probably enough for a simple questionnaire or interview guide. For a more complex instrument, you may need a sample of 50 to 100 interviews to test the questions and adjust them.

D. Can Testing Be Combined with Training?

Combining instrument testing with training the data collectors can save both time and effort. In most situations, however, it is not recommended because untrained data collectors can mask problems that may surface when a trained data collector uses the instrument. Untrained data collectors may have problems because of their own inexperience, not because of the instrument. For these reasons, it is best to use trained data collectors to test the instrument. One way to combine testing and training is to train data collectors first, then have them test the instruments.

CHAPTER SIX

SELECTING AND TRAINING DATA COLLECTORS

This chapter contains guidelines for helping you decide who should collect data, how data collectors should be trained, and how they can affect the quality of data.

A. Who Should Collect Data?

1. **Source, technique, and data collectors**. When you decide who should collect data, the data source and the data collection technique must both be considered. Make sure there is an appropriate match between the data collector and the source and technique. For example:

   - If the technique is interviewing and the source is mothers, the data collector should be someone who is comfortable with and able to carry out an effective interview with the mothers. Most often this is another women, preferably a mother.

   - If the technique is a document review and the sources are government statistics, the data collector should have a fundamental understanding of statistics.

2. **Selection criteria**. In selecting data collectors, some criteria must be kept in mind. It is important for the data collector to be acceptable to respondents, especially when interviewing and observation techniques are used. Below are several criteria to think about when choosing data collectors.

   - *Educational level*. The level of education and literacy required depends on the technique you have chosen. A complex questionnaire survey or conversational

interview usually requires basic writing and reading skills. On the other hand, if the instrument's questions and answers are coded in symbols or colors, the data collector need not be literate.

Some data collection activities require not only the data collectors to be literate, but require them to have some minimal level of education. The level of education can help ensure data collectors understand the methods they are using.

On the other hand, too high a level of education may not allow the data collectors to be effective. Well-educated data collectors may find it difficult to communicate with illiterate respondents during an interview. In general, the education level of data collectors should be high enough so they can use the technique, but not so high that it gets in the way of them interviewing respondents or observing subjects.

- *Age.* The respondents may not take the exercise seriously if the data collector is too young. If respondents think the data collector is too old, they may answer questions to please him. Both result in unreliable data.

Match the age of the data collector to the types of questions to be answered and to the ages of the respondents. The age of the data collector is less important when the techniques are observation, document reviews, or technical studies.

- *Sex.* The data collector's sex is important in observation and interviewing. Be sure to match data collector's sex to the sort of data you want to gather and to the sex of the respondents or subjects. Below are some inappropriate matches.

- A young male moderating a focus group interview with older women about family planning methods.

- A young female interviewing older men about using condoms.

- An elderly male observing young women taking care of their babies.

Although you will want to avoid sexual stereotyping, try to be sensitive to the culture and religion of the society. For example, it might be unacceptable for females to interview males in some Moslem societies while this might not be a problem in Christian societies.

- *Religion.* Religious differences sometimes make a data collector unacceptable to people. In some Hindu societies, members of higher castes may refuse to be interviewed by members of untouchable castes.

- *Socioeconomic status.* If the data collector is of a lower socioeconomic status than the respondents, they might not take the exercise seriously.

- *Language.* An interviewer must of course be able to speak the language of the respondents. It is best if he or she is completely fluent in the respondents' language. If this is not possible, the interviewer should at least be able to talk easily with the respondents.

- *Attitude.* A good attitude and high level of motivation of the data gatherer is crucial. A poorly motivated data collector is likely to be careless about gathering data. A rude or aggressive data collector might not gain the cooperation of respondents.

B. Alternative Data Collectors

CARE-managed projects throughout the world have used a variety of data collectors. Some of the more common ones are these:

Data collection team. In many mid-term and final evaluations, members of the evaluation team are the data collectors. This is realistic when they use mostly informal interviewing and document reviews. To guard reliability, make sure the data collection team has these characteristics:

- Is skilled and experienced in gathering data
- Is objective
- Speaks the language or uses good translators
- Understands the local culture and customs.

Project participants. Participants of the project have been used in some evaluations and monitoring activities to collect data. The advantage is that they are fluent in the local language and familiar with and sensitive to the cultural setting. They may, however, tend to assume answers to questions. Instead of recording a response to a question as it was answered, they record the response as they think it should be answered.

Project staff. Project staff members, including counterpart staff, are often used to collect monitoring data and are sometimes used to collect data for evaluations. Field staff can be effective data collectors. Staff are familiar with the communities, their residents, and their culture. Field staff speak the local languages and have the confidence of the people.

A drawback in using field staff is that it is sometimes hard for staff to be objective. Experience has shown that field staff has the tendency to be less than fully candid in recording data so data reflect more favorably on staff's work.

Students. Some CARE-managed projects have used college and university level students to collect data for large baseline surveys and evaluations. Students have proven to be conscientious and motivated. They are able to be objective and collect reliable data. Another advantage is cost. Universities often look for chances for students to get field experience and do not charge for the students' time. The problem with using students to gather data is that you may not be able to choose them based on characteristics you want like age, sex, language, socioeconomic status, and religion. You may have to take what you can get.

Teachers. Primary and secondary level school teachers are usually either from the communities or have lived in the communities long enough to be familiar with language and culture. They have enough education to allow them to use most data collection instruments. Experience shows teachers can be objective and can collect reliable data. A major drawback is that teachers often don't have time to collect data for long periods of time. If you decide to use teachers, make sure they are clear about how much time you expect them to spend.

Professional data collectors. CARE-managed projects have hired professional data management groups to collect and analyze data. These groups often have data collectors who have all the important characteristics outlined previously.
But beware. This kind of service can get really expensive and does not necessarily guarantee good quality data collection.

C. How Should Data Collectors Be Trained?

In planning the training for data collectors, you will want to address the following: who will do the training, the content, methodology, location, materials, and evaluation. These will be discussed below.

Trainers. Trainers should be experienced in facilitating similar types of training and using the data collection techniques and instruments in the field. If possible, give trainers responsibility for designing the training. Write this responsibility in the Terms of Reference. The number of trainers needed can range from one to a team of five or six. The number of people to be trained and the number of instruments determine how many trainers you need.

Content. Content is what is covered during training. Content is determined by the data collection activity and its design. Include at least the following:

- Purpose of the data collection activity
- Discussion of stakeholders and stakes
- Background of the project
- Methodology of the data collection activity

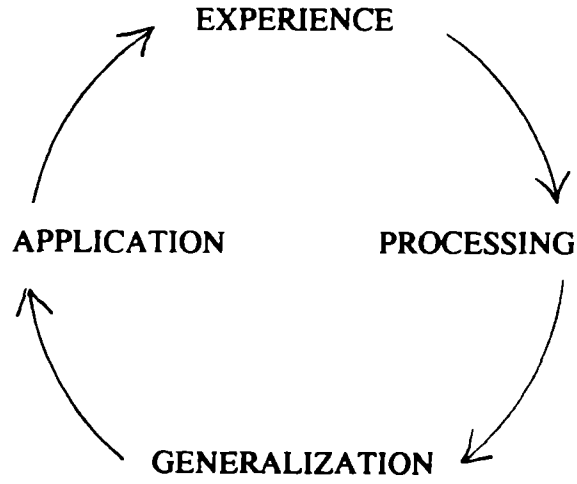
- How to use the instruments and protocols
- Possible problems and solutions during data collection.

Methodology. If you hire data collectors, be sure they understand the terms and conditions of their employment. This includes job requirements and conditions, explanation of their fees and per diem, causes for dismissal, confidentiality, absence from work, and attendance.

Conduct some sort of group building exercise early in the training if you use a large number of data collectors. This can create an atmosphere of team spirit and commitment. Be sure to address cooperation and group problem solving. You may also wish to do some pre-testing, so that you can assess the group's progress.

Try to follow the Experiential Learning Cycle when you design the training. It has four aspects: experience, processing, generalization, and application.

- Experience: Experience is the learning activity.
- Processing: The group discusses the learning experience and identifies points that need further clarification.
- Generalization - Specific experiences and learnings are generalized.
- Application - Learnings are used in actual field situations.



You can include this learning cycle in the training design by structuring each training session in this way:

- Present the theory and discuss it.
- Rehearse the theory.
- Discuss (or "process") the exercise and draw general conclusions.
- Apply what has been learned in the field.
- Begin the process again.

Here is how it works for a training session on key informant interviewing.

Present the theory. What is key informant interviewing and how is it done? The trainer presents the theory behind key informant interviews and the reasons for them, and group members raise questions and discuss what they have learned.

Rehearse the theory. After a review of the theory of key informant interviewing, participants form pairs and take turns practicing how to conduct key informant interviews.

(These two steps are the "experience" phase.)

Process the interview exercise. Participants come together in the large group and discuss what they learned from the practice interviews. They also talk about the implications of these learnings for actually conducting key informant interviews in communities. (This includes both "processing" and "generalization.")

Apply what has been learned. Participants go to the community and practice conducting key informant interviews with community residents. (This is the "application" phase.)

Begin the process again. The field practice leads to another experience that should also be discussed and refined in the whole group at some point.

To apply the Experiential Learning Cycle, divide training into two parts. The first part is a classroom situation where you talk about theory, practice, and processing. The second part takes place in the field where you apply the learnings. If you are pressed for time you can do all classroom training, then do field work, but adult education specialists tell us that immediate application of classroom learning is more effective.

Location. The training described above should be held in a comfortable and appropriate place with access to communities where data collectors can practice using instruments under field conditions. Be sure to make plans well in advance for the training location and any special needs.

Materials. Materials for training fall into two general categories: General training materials like flip chart paper, markers, masking tape, notebooks, and pens; and instruments, which depend on the data collection activity.

Evaluation. Evaluation of the data collectors is a critical part of training. Before the end of training, be sure that they have acquired the skills and abilities they need. Obviously, if they can't use the instruments, they should not be allowed to collect data. The evaluation of data collectors can be formal or informal. You can give a formal test at the end of training, or you can simply keep notes on how well they are doing. Field practice is an excellent time to assess the skills and attitude of data collectors.

D. How Data Collectors Can Affect Data Quality

Both the selection and training of data collectors affect the quality of the data. Data collectors who possess basic characteristics and meet the established selection criteria are more likely to gather reliable data. Data collectors who do not satisfy the selection criteria run a risk of collecting unreliable data.

The same is true for training. Untrained data collectors are more likely to gather unreliable data than those who are well prepared. Using inappropriate or untrained data collectors during interviewing can result in what is called interviewer bias. Interviewer bias affects the reliability of the data. It is caused by the interviewer, knowingly or unknowingly, influencing how the respondent answers questions. Here is an example.

> An agriculture extension worker from the district office interviews a farmer about the quality of services given by the district office. The farmer isn't really pleased with the services but doesn't want to say so for fear of hurting the feelings of the extension worker. So the farmer tells the interviewer that the services have been useful and very satisfactory.

Data collected by the extension worker is unreliable because another interviewer, unknown to the farmer, is likely to get a different answer. The position and relationship of the extension worker to the farmer caused interviewer bias.

You can control interviewer bias by making sure the interviewer is a good match for the kinds of questions being asked.

CHAPTER SEVEN

COLLECTING DATA

This chapter examines some of the factors affecting data quality during collection such as response rates, reliability, and problems that can arise during data collection. These issues affecting data quality appear here because they happen during data collection. However, it is important to think of ways to ensure high response rates and reliability and ways to avoid things that can go wrong *before* you collect data. Think about these issues when you plan and design the data collection activity.

A. Response Rates

In interviewing, response rate is the proportion of members of the sample who took part in the interview. Response rate is usually stated as a percentage: The number of the persons who responded divided by the number of persons in the sample is the response rate.

> For example, if 35 key informants are interviewed out of a sample of 70, the response rate is 50 percent.

Not all members of the sample will take part in the interview. Some people won't be available; others simply won't want to be interviewed. The goal however, is to get as high a response rate as possible. A low response rate decreases the representativeness of the data by decreasing the sample size, and biasing the sample.

Decreased sample size. The original sample size should account for members who won't participate in the interview. Do this by estimating a certain proportion of members who aren't likely to take part; increase the sample by this amount. You have a problem when the response rate is lower than you planned.

A correct sample size ensures the sample is representative of the population. If the sample size shrinks too much, there is a very good chance the sample is no longer representative of the population.

Biased sample. The problem with a low response rate is how members are "selected out" of the sample. If you are certain that members who do not take part are randomly selected out of the sample, the threat to representativeness is less. Experience shows members who don't participate in the interview are often different in some important ways than those who do take part. This is called self-sampling bias. Some examples:

- People who like a project are more likely to want to be interviewed than those who do not.

- Poorer people, who may be afraid of being interviewed, may be the biggest users of project services.

- People who are away and not available for the interview may well be the most important consumers of project services.

How to improve response rates. It is important to have a clear plan to make sure response rates are as high as possible. Below are some suggestions.

- Advise the respondents well in advance so they can plan to be available for the interview. People living in communities where CARE-managed projects are implemented have many responsibilities. They go to the market, work in the fields or outside the community, fetch water, and so forth. Advise people who are part of the sample that you want to interview them; tell them the dates. Make dates flexible to meet the needs of the respondent.

- Explain the purpose of the interview and stress how the information will be used to improve the project. Experience shows that when the respondents are aware of the importance of their answers, they are more likely to participate in the interview.

- Monitor response rates during data collection. If response rates are low, identify the reasons and make a plan to increase them. Identify causes of low response rates and do something about them early. It may be necessary to increase the sample size.

- Follow up respondents who do not participate in the interview. Tell them how important their responses are. Also, try to find out why they are not taking part and do something about it if possible.

B. Reliability

Reliability means that the data collected are consistent. If twelve data collectors observe the same farming practices, they should report seeing the same things. This is called reliable data. Data are unreliable if observations are very different. The major cause for unreliable data is bias.

Biases. Bias occurs when some factor distorts the real situation. The real situation or truth is a relative term; it means if the same data are collected several different times, they are reported the same each time. Bias causes data to be unreliable. Two major causes of bias during data collection are the data source and the data collector.

- *Data source and biases.* Data source biases are most common in observation and interviewing. Respondent bias occurs when respondents answer questions falsely, whether intentionally or unintentionally. For example, a respondent may answer questions falsely because he doesn't want to tell the truth for some reason or because he doesn't understand the question.

  During observation, subjects who know they are being observed act differently than they would under normal conditions. Minimize bias during observation by not letting subjects know they are being watched for specific behaviors.

- *Data collectors and biases.* Data collectors who collect and record data incorrectly cause biases. For example, asking leading questions or asking questions differently each time results in bias; recording responses and observations differently each time or incorrectly also causes bias.

Ensuring reliability. You can help avoid bias during data collection by supervising data collectors and by conducting reliability checks on data.

- Supervising data collectors helps ensure reliability. The purpose of supervision is to make sure that they collect data from each member of the sample and use instruments correctly, and that problems get solved quickly.

- Conducting reliability checks involves re-collecting data from a subsample of the sample and comparing it to the original data to make sure they are reliable. Here is an example:

  > During a household survey the supervisor administers the questionnaire to a sub-sample of the sample who had already been interviewed, and then compares these responses on his questionnaire to those on the questionnaire administered by the data collector. Responses that are different are noted and followed up by the supervisor.

C. What To Do When Things Go Wrong

Most likely you will be faced with a number of problems during data collection. Good planning helps. Make contingency plans in case original plans fail. Some of the more common problems that can occur during data collection are these:

Data collector drop-out. When data collectors are paid, they tend to stay with the task. Drop-out is more likely if you use volunteers, especially if they are expected to work over a long period of time. When data collectors drop out you probably won't be able to collect as much data as you had planned to collect, nor can you collect data from each member in the sample. And if you use probability sampling, you cannot generalize the results with confidence to the population. Select and train a few more data collectors than you think you will need so you have some spares if you need them. Some other ways to avoid problems:

- Motivate data collectors by paying them a salary or stipend or giving some other incentive.

- Stress the purpose and importance of the data they collect.

- Give data collectors good field support and supervision.

- Choose a larger sample than you think you need in case you are unable to collect as much data as you expected.

Unavailability. Make sure the people who are going to be interviewed or observed are available. There is nothing more frustrating than to climb three kilometers up a mountain to interview a family only to find they are in the fields or have gone to market.

Seasonality and weather. Seasons and weather often interfere with data collection. Most often this means rains and floods. Try to plan data collection so that weather is not an issue. For example, if you use probability sampling, you must collect data from each member of the sample and will need to collect data during the time of year when data collectors can get to each member. If you must collect data during a season when weather is a problem, think about using purposive sampling and informal interviewing and observation techniques.

Data collection side-tracked. Data collection can get side-tracked when people prepare special activities, like parties, for data collectors. Here is an example:

> During an evaluation of a CARE-managed project in Bolivia, a community organized a festival for data collectors; it lasted several days. Community

members were too busy eating, drinking, and dancing to be interviewed. The evaluators had failed to explain the purpose and importance of data collection to the community. They simply told the community someone would come to look at the project. The community's way of trying to impress the data collectors was to organize a festival.

You can avoid many of these situations by explaining to the people why you want to collect data and how they can help.

Vehicle break-down. Vehicles seem to break down regularly. Normally, planners assign a set number of jeeps or motorcycles to the data collectors and supervisors. When they break down, data collection gets thrown off schedule. Try to have back-up vehicles and alternative forms of transportation available before data collection begins.

CHAPTER EIGHT

ANALYZING AND INTERPRETING DATA

This chapter provides a framework for analyzing and interpreting data. It describes the steps involved in analyzing both quantitative and qualitative data and provides a very brief discussion of statistical analysis.

This handbook has presented data collection in a logical series of steps:

- Key questions or goals, outputs, and activities determine indicators and targets.
- Indicators and targets determine choice of data sources, techniques, instruments, and questions.

Data analysis follows the same logic, but in reverse: We analyze data to determine values for indicators and targets. And we examine indicators and targets to determine if the project has achieved goals, outputs, and activities or to answer the key questions that have been posed.

The task now is to look at the information you have collected, analyze it, and figure out how to interpret and present it in such a way that it will be useful to the stakeholders. You can meet the information needs of the project by following the steps below.

A. Five Steps to Analyze Data

Data analysis means organizing and examining data to give useful information. Take these steps to analyze data: check quality, summarize, analyze, present, and interpret.

——> ***Step 1: Check quality of data.*** The quality of data should be checked as soon as it becomes available. For example, it is very useful to look carefully at the completed questionnaires or interviews the evening of the day the data were collected to determine right away if the quality of the data is good. This way it is possible to see if instruments are complete and error rates low, and correct any problems immediately. You can check the quality of data by computer or hand, using three kinds of checks:

- **Completion check**. Review instruments to find out how many have been completed. For example, check questionnaires to make sure questions are answered and look over observation guides to ensure observations have been made and described.

- **Error rate check**. Error rate is the proportion of items on an instrument that are completed incorrectly, when data collectors skip questions or record answers in the wrong place.

- **Cross-item check**. Check how reliable responses are by comparing similar items from the same or different instruments. If a woman's age is recorded as 18 but the number of children she has is listed as five, there is probably a mistake. Confirm the response or don't analyze it because it is not reliable.

——> ***Step 2: Code and summarize data***. Data appear on instruments as numbers, response options, quotes, and descriptions. These are called raw data because they don't mean anything in this form. Summarize raw data before analyzing them. There are two steps: coding and summarizing.

Coding data. Codes are guidelines or instructions for organizing and categorizing data. If the response options for a question are "yes" and "no," codes can be "yes" = 1.1 and "no" = 1.2.

Coding helps analyze data. For a questionnaire survey, if you want to know how many women between 36 and 45 years of age practice any family planning methods, you will code for these factors:

- Family planning practice
- Frequency
- Woman's age
- Method

Analysis will show how many women between 36-45 years of age (or their partners) practice any family planning method and how regularly.

Summarizing data. The first step in summarizing data is to transfer them from the data collection instrument to a summary format. Quantitative data are usually transcribed manually from the instrument to a summary table or entered into a computer. (Quantitative data are data in the form of numbers and usually come from close-ended questions.)

You can use a summary grid to summarize small amounts of quantitative data by hand. List all coded responses along the side of the page and each questionnaire number along the top. Mark responses for each questionnaire.

In the questionnaire example below, respondents 001, 003, 004, and 006 answered "yes" to question number 1 ("Do you or your partner ever use any family planning method?") Respondents 002 and 005 answered "no". Summarize data by reading the columns left to right.

Figure # 12

SUMMARY GRID

	Respondent Questionnaire Number							
Coded Response Options	001	002	003	004	005	006	etc...	Total
1.1 (yes)	x	o	x	x	o	x		
1.2 (no)	o	x	o	o	x	o		
2.1 (always)	x	o	x	o	o	o		
2.2 (sometimes)	o	o	o	x	o	x		
2.3 (never)	o	x	o	o	x	o		
3.1 (between 16-25)	o	o	x	o	x	o		
3.2 (26-35)	o	x	o	o	o	o		
3.3 (36-45)	x	o	o	x	o	x		
3.4 (over 45)	o	o	o	o	o	o		
4.1 (traditional)	x	o	o	o	o	o		
4.2 (condom)	o	o	x	o	o	x		
4.3 (pill)	o	o	o	o	o	o		
4.4 (other)	o	o	o	x	o	o		

Computers also use a kind of summary sheet. The analyst creates a summary sheet format, which follows the design of the instrument. Then the responses are transcribed from the first instrument onto the summary sheet, numbering the sheet to correspond to the instrument. These steps are repeated for the remaining instruments. Computers can summarize large numbers of responses much faster than people can do by hand.

Coding is more difficult for qualitative data. (Qualitative data are data in the form of words such as quotes and descriptions.) A common way to code such data is to let the indicators determine categories, then assign codes to strings of quotes or descriptions that belong to a category. You will want to code close-ended or structured responses when the instrument is made. Code open-ended responses, especially when there is a lot of qualitative data, during data summary.

For focus group interviews, if you want to know women's attitudes towards family planning methods, look for quotes about the subject. You, or the analyst, will code quotes for "attitudes regarding family planning methods."

Transcribe qualitative data from field notes or cassettes to summary tables or computer, then code and categorize data. Matrices are popular summary tables for qualitative data. In the matrix that follows, quotes would be organized by who said it (project manager, farmers, and field staff) and what they said about pesticides, training, and technical assistance.

Figure # 13

SAMPLE SUMMARY MATRIX

	Project Mgr	**Farmers**	**Field Staff**
Pesticides	"Pesticides on local market are not good choices"	"Made me sick" "I got a rash"	"Farmers need more training in safety measures"
Training	"Trainers too directive"	"Too short"	"Too much written material"
Technical Assistance	"Field staff need more training"	"Very helpful" "Increased yield"	"Need motorcycles to go to the field"

——> ***Step 3: Analyze data.*** Analyze quantitative data by taking data from the summary tables and doing statistical analyses in order to get useful information. To analyze qualitative data, take data from the summary matrix and further categorize and condense them to the point where they give useful information. You can do a lot of different kinds of analyses on both quantitative and qualitative data. However you decide to analyze data, make sure you end up with measures for the indicators:

- Number of farmers using organic fertilizer
- Percentage of saving and loan members taking loans
- Rate of infant deaths.

To get these measures, or values, count responses from summary tables and record them. For example, here are responses to the kind of fertilizer farmers use:

- 1.1 cow dung (n = 50)
- 1.2 chemical fertilizer (n = 25)
- 1.3 other (n = 0)
  (n = 75 farmers)

In this example, 50 farmers said they used organic fertilizer (cow dung) on their corn; 50 is the measure for the indicator. If in this example the indicator were "percentage" instead of "number," you would divide number of farmers who use organic fertilizer (50) by the total number of farmers (75) and multiply by 100: 66.6%

To analyze *qualitative data*, you want to get percentages, rates, or frequency counts and still not lose the quotes or descriptions. Here is the way to do it:

- Develop categories based on indicators or key question.
- Assign qualitative data like quotes and descriptions to the appropriate category.
- Calculate indicator values by counting, for example, how many people responded a certain way or behaved a certain way.
- Use actual quotes or descriptions to support the indicator values.

Here is how it works for a key question.

Key question: Why don't some of the families in the project grow silk worms?

Indicators: Percentage of families who say they don't have enough money to invest in silk worms.

Percentage of families who say they don't want to take the risk of growing silk worms.

Percentage of families who say they don't have enough information about growing silkworms.

Percentage of families who give another reason.

Then organize these categories into a matrix and list quotes under each category.

Figure # 14

ANALYZING QUALITATIVE DATA

Investment	**Risk**	**Information**	**Other**
"I have to pay school fees"	"What if I fail?	"I didn't understand the extension worker"	"Too busy"
			"Nobody to do the work"
"My daughter's getting married this year."	"Silkworms die if weather is cold"	"No one told me about growing silkworms"	"There's no market."

Count the number of respondents with quotes in each of the categories. Let's say we counted quotes and came up with the following numbers.

Investment	= 55 respondents
Risk	= 22 respondents
Information	= 28 respondents
Other	= 11 respondents
TOTAL	116 respondents

To calculate indicator values, figure the percentages: divide number of respondents in each category by the total respondents (116) and multiply by 100:

47.4% of families don't have enough money to invest in silk worms.
19.0% of families don't want to take the risk of growing silk worms.
24.1% of families don't have enough information about growing silkworms.
9.4% of families have other reasons for not growing silkworms.

A final step is critical so that you don't lose the flavor of the information. Take a sample of typical quotes from each category and use them to support the indicator. For example, take several typical quotes about families not having enough money to invest in silk worms and add them to the analysis results.

To answer the key question, we can say that the primary reason that families don't grow silk worms is that they don't have enough money to invest. This information is important and useful. However, the quotes from families add a whole other dimension of information that can help us decide what to do about getting more families to grow silk worms.

——> ***Step 4: Presentation of data***. Present the results of your data analysis in a way to help interpret them. The idea is to consolidate and display your findings so that the reader can *see key information quickly, make comparisons, and determine patterns and trends.*

Presenting quantitative data. There are many formats you can use to display quantitative data. Some of the more common ones are frequency distribution, bar graphs, cross tabulation, and pie charts. An example of each is given below.

Figure # 15

FREQUENCY DISTRIBUTION

Key Question: Why don't mothers bring their children to be immunized?

	Number	Percentage
Health center is too far	60	30
Nurses treat mothers badly	110	55
Mother did not know about immunization	10	5
Other (fear of needles, superstition, etc.)	20	10
TOTAL	200	100

BAR GRAPH

Key Question: Why don't mothers bring their children to be immunized?

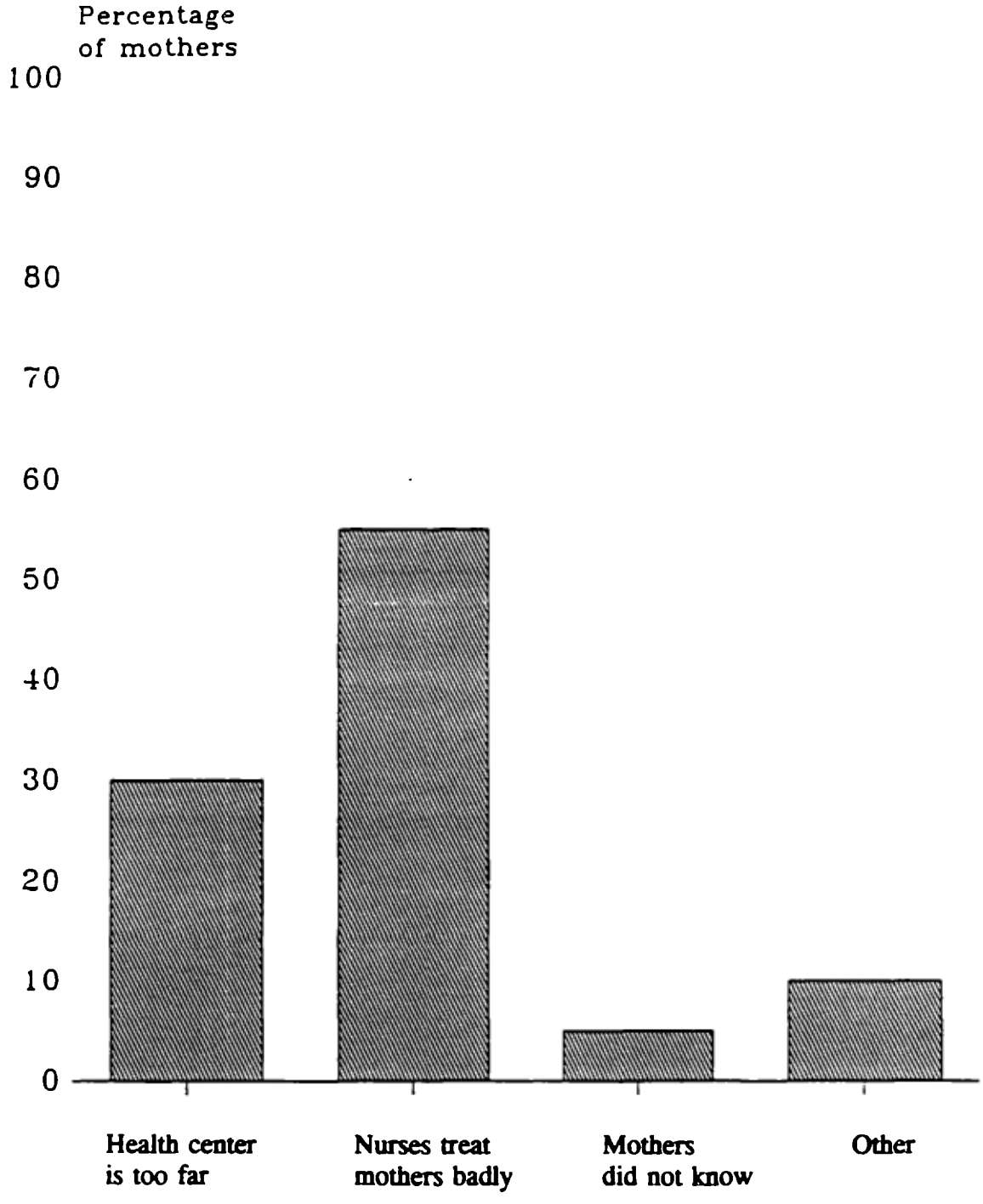


Figure # 17

CROSS TABULATION

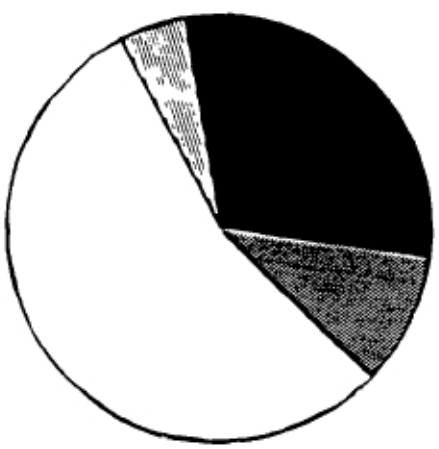
Key Question: Why don't mothers bring their children to be immunized?

Mother's Province	Health center is too far away	Nurses treat mothers badly	Mothers did not know	Other
North	2	65	--	2
South	40	10	6	10
East	8	40	2	3
West	10	--	2	5
TOTAL	60	110	10	20

Figure # 18

PIE CHART

Key Question: Why don't mothers bring their children to be immunized?



KEY: Health center is too far ■ Nurses treat mothers badly □

Mother did not know about immunization ▨ Other ▩

Presenting qualitative data. One of the easiest ways to display qualitative data is using a matrix similar to tables used to present quantitative data. There are two basic types: simple and compound.

A simple matrix has categories at the top of the page. List data like descriptions and and quotes in columns under each category.

Figure # 19

SIMPLE MATRIX

Key Question: Why don't mothers bring their children to be immunized?

Health center is too far (30%)	Nurses treat mothers badly (55%)	Mothers did not know (5%)	Other (10%)
"It's a 3-hour walk"	"She acted like I was stupid"	"Needles are only for fever"	"Clinic is dirty"
"The bus costs too much"	"They made me wait six hours"		"Needles cause AIDS"
"I have no transport"	"She just grabbed the baby"		

A compound matrix has two sets of categories. One is listed horizontally and the other is listed vertically. Place data in the cells that go with each set of categories.

Figure # 20

COMPOUND MATRIX

Key Question: Why don't mothers bring their children to be immunized?

Mother's Province	Health center is too far	Nurses treat mothers badly	Mothers did not know	Other
North				
South		(Quotes go here)		
East				
West				

If, as often happens, there are too many quotes or descriptions to list in the matrix, take a sample of typical quotes or descriptions from each category. Use these in the matrix to represent all data for that category. There is no rule for selecting what data to use in the matrix. Making guidelines can help, but what ends up getting included or left out is up to the analysts.

Feuerstein's *Partners in Evaluation* (TALC) has an excellent chapter on summarizing and presenting data, called "Reporting the Results of Evaluation."

——> **Step 5: Interpret data.** This means taking the results of analysis and making sense out of them. In other words, what do the numbers or words mean in terms of the project?

Focusing the data collection activity on key questions or on project goals allows us to focus data analysis and interpretation so you can decide if there is enough evidence to answer key questions, or to say if project goals, outputs, or activities were achieved.

Focusing the data collection activity on key questions or on project goals allows us to focus data analysis and interpretation so you can decide if there is enough evidence to answer key questions, or to say if project goals, outputs, or activities were achieved.

Be sure to document how you used data to make judgments about the project and discuss some of the assumptions you made. In the immunization example, you will certainly want to see how you can improve nurse-patient relationships in the Northern province. You may consider devising a method of transportation to the clinic or building and staffing more clinics. Interpreting results means more than that, however. You will, for instance, want to look carefully at your "other" category. It is important to discuss *all* the indicators and important assumptions.

Interpretation is an excellent opportunity to bring together key stakeholders to examine data and make judgments about goals, outputs, and activities or key questions.

Qualitative data are often richer and more helpful than quantitative data. For example, specific quotes from respondents about why they don't use credit is more meaningful than the number of respondents who say they don't use credit "because it is too expensive."

The advantage of qualitative data becomes a disadvantage during data analysis. Quotes from 100 different people about why they don't use credit are much more difficult to make sense of than 100 responses to a set of closed questions about using credit. Analysis of qualitative data is a lot easier if you focus data and determine how to organize data ahead of time. For example, if you want to know why some families don't want to grow silk worms, you develop several indicators for this question. Indicators reflect hunches about why families don't want to grow silk worms.

- They don't have enough money to invest
- They don't want to take risks
- They don't have enough information

Because you may be off base with your hunches, it is a good idea to add an "other" category and examine it carefully if it seems higher than you expected. Put quotations in the same categories as the indicators.

- Quotes about not having money to invest go in one category.
- Quotes about risks go in another category.
- Quotes about not having enough information go in a third category.
- Quotes about other factors go into a fourth category.

Keep a balance between organizing, categorizing, and condensing qualitative data and keeping the integrity of the words.

Be careful, because you can categorize and condense qualitative data to the point where the words are lost. This results in a set of close-ended responses, which causes you to lose the benefit of qualitative data.

A rule of thumb is to focus, organize, categorize, and condense qualitative data to a point you can manage them, but not to the point that you lose the spirit of the quotes and descriptions.

B. Statistical Analysis

Data analysis can be complex, especially if you use advanced statistics. This chapter does not go into statistics in any detail. Statistics, a specialized area of mathematics that attempts to make order out of numbers, is used to analyze quantitative data to give us useful information.

There are two main branches of statistics: descriptive and inferential. What you want to know and how confident you want to be in your results will determine which one you use. If you plan to use statistics, you will need to consult a specialist or study some of the references listed in the Bibliography, in particular *How to Analyze Data*, by Fitz-Gibbon and Morris, published by Sage Publications, and *The Collection, Analysis, and Use of Monitoring Data*, by Casley and Kumar.

1. **Descriptive statistics**, which you will use most often, uses tables, graphs, and charts to display data. It also uses few numbers instead of many by measuring averages, spreads, and normal distributions. These are discussed below.

Averages. There are three kinds of averages: mean, median, and mode.

o MEAN is the arithmetic average. It is obtained by adding responses of all your respondents and then dividing by the total number of respondents. Test scores is a good example of how we can use means. Let's say 10 data collectors take a test and get these scores: 90, 80, 75, 50, 70, 65, 85, 95, 80, 100. To calculate the mean test score you divide the sum of these scores (790) by the total number of tests, which is 10. So the mean score is 79. Analysts use the mean most often to measure averages.

o MEDIAN is the "middlemost" response in the distribution of scores -- the middle value of a group of numbers ordered from smallest to largest. One-half of the respondents score above the median and one-half score below the median.

• MEDIAN is the middle value of a group of numbers ordered from the smallest to the largest. To get the median for the test scores, order them from the lowest score to the highest and select the score that falls in the middle. In this case, the median is 80. Analysts use medians only to order numbers to be able to say how many of something occurred above or below a certain point.

• MODE is the number occurring most often. To get the mode, order the numbers from smallest to largest and count how many times each number occurs. The one occurring most often is the mode.

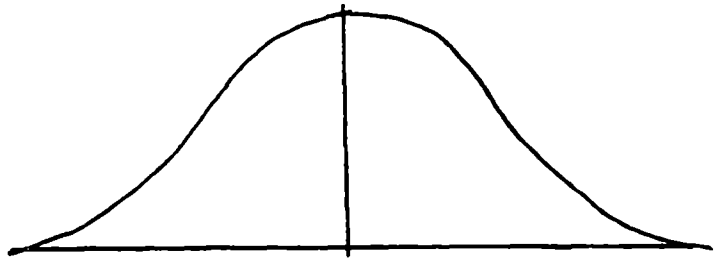
Measuring spread - Averages can be misleading if there is a lot of difference or spread in the number of times something happens. Spreads can be determined by using percentile, variance, standard deviation, and normal curves.

• PERCENTILE is a measure that tells how many numbers fall above and below a certain number. The median is called the 50th percentile. The lowest number is the 0 percentile, and the highest number is the 100th percentile.

• VARIANCE is the degree to which numbers vary from the mean. To calculate variance, subtract each number from the mean, square them, add the squares, and divide by total number of numbers.

• STANDARD DEVIATION is related to variance. It is a statistic that shows how much the scores are spread out around the mean. The larger the deviation, the more spread out are the scores. Standard deviation is the square root of the variance. Use a calculator with a square root key to calculate standard deviations.

• NORMAL CURVES, sometimes called bell-shaped curves, show quickly how numbers are distributed. The mean, median, and mode are all at the center of the curve. Standard deviation is the numbers to the right and left of the center.



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Here are some interesting facts about normal curves:

- 68 percent of all numbers fall within one standard deviation of the mean. Half or 34 percent fall one standard deviation to the right and 34 percent fall one standard deviation to the left.

- 95 percent of all numbers fall within two standard deviations from the mean.

- 99.7 percent numbers fall within three standard deviations from the mean.

• ASSOCIATION, another area of descriptive statistics, means certain traits or characteristics being looked at are related. For example, the following are usually associated:

- Malnourished children and diarrhea
- Family income and number of males in family
- Skin disease and use of pesticides
- Family size and mother's educational level

Some ways to go about making associations in descriptive statistics are cross product ratio, which compares traits or characteristics of two things, correlation coefficent, and regression. These terms are defined in the glossary, but because the calculations are used only rarely in most projects, we don't go into detail here.

2. **Inferential statistics** is used to draw sound conclusions from data. Inferential statistics helps give confidence in the data by saying chance or other things did not account for the findings. Here is an example.

> During a mid-term evaluation, the project manager wants to find out if accounting training improved skills of small scale entrepreneurs. The evaluators chose two samples of entrepreneurs, one who received training and another who did not. Evaluators give each group an accounting test. They analyze the results and find the group who received training scored an average of 75 percent on the test. The group who did not scored an average of 50 percent.
>
> The evaluators are not sure that training is the only reason one group scored higher than the other. They use inferential statistics to see if chance or a biased sample could have been responsible for the difference.

> The evaluators find that group members who received training and scored higher on the accounting test had much more experience than the other group. The sample was probably biased so they cannot attribute the high test scores to accounting training alone.

Analysts use these concepts in inferential statistics: probability, confidence intervals, and significance tests. These terms too are defined in the Glossary.

In summary: For most data collection, you will use descriptive statistics because calculating and displaying frequency counts, percentages, and rates is good enough. Sometimes, though, you want go beyond this to make associations. If that is the case, use cross product ratios and correlation coefficients. This can get a little sticky, so think about calling on an statistics expert.

In some cases, you might use significance tests to attribute change to the project's interventions. This is most likely during mid-term or final evaluations. If you decide to use inferential statistics and you are not an expert, it is best to consult a statistician.

CHAPTER NINE

SHARING AND USING RESULTS

This chapter examines using the results of the data collection activity by focusing on steps in using results, sharing results, and planning to use results.

Using the results of a data collection activity is the heart of the activity. How results are used depends on the purpose of the data collection activity.

PURPOSE————> HOW RESULTS ARE USED

There are two major steps to take before the results can be used: sharing results with key stakeholders, and planning how to use the results.

SHARE————> PLAN————> USE

Why should the results be shared? Results must be shared before a plan can be made to use them. The primary reasons for sharing results are to communicate your findings, recommendations, and lessons learned, and what these mean in terms of project planning and implementation.

The bottom line is stakeholders must understand results and what they mean before they can use them to make informed decisions about the project.

With whom should the results be shared? The results should be shared with those who intend to use them. Normally, the users are the same key stakeholders identified during the planning phase: project participants, counterparts, project manager and staff, donors, and--within CARE--the country office, the Regional Management Units, Regional Technical Advisors, and the Technical Assistance Group in New York.

Try to pinpoint exactly those who are interested in your findings. For example, donors are often not interested in results of monitoring or rapid appraisal activities but are very interested in evaluation results. Remember: ***Define and know your audience.***

How should the results be shared? The user of results determines how those results should be shared. Some methods of sharing are more appropriate for some users than others. In other words, package results for your audience. Both *Partners in Evaluation* by Feuerstein and *How to Present an Evaluation Report* by Morris and Fitz-Gibbons contain valuable tips about effective ways to present your findings.

- **Written report.** The most common method of sharing results is a written report. Be sure to write the report in the style the audience prefers. If the audience likes formal reports with lots of tables and graphs, write a formal report with tables and graphs. If the audience likes informal reports with pictures or drawings, write it that way. CARE's *Program Manual* contains a report format that should be used for all data collection activities requiring a final report. It appears, with detailed guidelines, as Appendix 4.

  Although the written report is the most common method of sharing results of the data collection, it is not always the most appropriate and effective. For example, if you want to share results with project participants who do not read, pictures or stories are more appropriate. If you want to communicate results to busy donors who cannot take the time to read a report, a verbal presentation or a short summary may be the most effective. Other possible methods used to share results, which are often used in combination, include the following:

- **Workshops or meetings with key stakeholders**, in which you review the findings and recommendations and develop an action plan to act on the results.

- **Videos and/or cassettes** containing the highlights of the results, which you can send to key stakeholders.

- **Verbal presentations** using graphs and charts with key information. Slides or posters can also be used.

- **Case studies** used to make examples of certain situations or problems; cases can be people, families, communities, organizations, or events or situations.

- **Community theater** such as skits, plays, or puppet shows where key results are communicated through drama.

- **Informal discussions with stakeholders** to discuss the findings and what to do about them.

- **Booklets** that tell about the project and the results in story form.
- **Photographs or drawings** that communicate results and are used to generate discussion about what to do next.
- **One-page summaries** of the results sent to key stakeholders.
- **Radio or TV spots** highlighting results.
- **Articles in newspapers or journals** that tell the story of the project.

When should the results be shared? The most important thing to remember is that results that come too late cannot be used by key stakeholders to make decisions. It is best to share them as soon as possible.

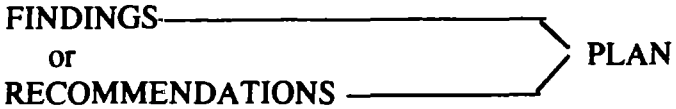
Preliminary results are results that haven't been interpreted. Some stakeholders ask for preliminary results; but be careful. Make sure they are similar to what final results will look like. Make final results available quickly. Stakeholders may take decisions or form opinions based on preliminary findings before final analysis is complete. Try to assure that independence and integrity are not compromised by stakeholders' desire for particular outcomes. CARE's *Program Manual* has administrative guidance for timing of reports. The final report should be completed promptly; a short timely report is more valuable than a lengthy late one.

Use written reports, verbal presentation, or some other method to communicate preliminary results to interested stakeholders. Invite stakeholders to comment on the results and make interpretations. This is a good way to get stakeholders to participate and buy-into the preliminary results and their eventual interpretation.

Again, emphasize finishing and sharing final results quickly. Final results include the interpretation of the preliminary results. They have been summarized into major findings, conclusions, and recommendations. Share final results with all key stakeholders using one or a combination of communication methods. Remember: ***Timing is everything.***

Planning to use the findings. Before results of the data collection activity can be used, some sort of plan must be made. In other words; how will results be used? This depends on what decisions have to be made. Planning involves getting one or more stakeholders together and plotting a course for using the results. It is they who will determine the plan.

The plan addresses the recommendations. If the data collection activity doesn't produce recommendations, it should address the major findings and conclusions.



If you intend to use a meeting or workshop to develop the plan, here are some hints.

- o Make sure everyone is clear about the purpose and objectives of the meeting.
- o Specify what outputs are expected and what they will look like.
- o Prepare an agenda and review it with everyone at the beginning of the meeting.
- o Make a schedule with the group of when items on the agenda will be covered.
- o Appoint a facilitator to guide the meeting and make sure the items on the agenda are covered and the outputs produced.

There is no single way to make a plan. Below, however, is one format you may find helpful in getting started.

Findings or Recommendations	**Action to be taken**	**By whom?**	**When?**
1			
2			
3			
4			
etc.			

In Conclusion . . .

Data collection and analysis, followed by presentation of the findings to a variety of stakeholders, normally demands a substantial commitment of time, energy, funds, and other resources. Often, the project staff and others who take part in the data collection and evaluation process will have new insight into the project and how it can be modified

to increase the positive, sustainable benefits left behind. However, the process itself and associated insights are only first steps to improving the quality of our projects. The findings, conclusions, and recommendations made in an evaluation (or other data collection activity) must be carefully reviewed.

Staff should try to be open-minded and objective about the evaluation, even when shortcomings or mistakes in the project are identified. The project staff needs to study each recommendation thoroughly and reach a decision about whether or not to accept the recommendation and, if so, how to implement it.

Put it in writing . . . The rationale for these decisions should be clear and should be put into writing. In many cases, not all recommendations will be implemented. Some may be implemented only partially or over a period of time. In some cases, a donor, a government counterpart, or other decision maker may mandate what action is to be taken. In other cases, key decision makers, such as donors, counterparts, staff, or project participants, may disagree among themselves as to what follow-up action is to be taken. This makes it even more important that a course of action be negotiated and carefully spelled out. By clearly writing a response to each recommendation and what follow-up action is planned, project staff indicate that they have fully considered the evaluation and are taking steps to make use of it to improve the project.

. . . and be sure to follow up. At this point, it remains for project managers to develop work plans and supervise their execution. This attention to follow-up often occurs little by little, slowly, one day at a time. A recommendation like "Improve relations with government counterparts," is implemented gradually, through more visits together, more joint activities, more telephone calls, and the like. "Enhance participation of village women in the project" similarly requires a myriad of large and small actions on many fronts with counterparts, male staff, female staff, different groups of villagers, trainers, and others.

Only through conscientious and creative follow-up can data collection and evaluation activities yield the improvements in project quality and sustainable benefits in the lives of the people with whom we work.

APPENDICES

Appendix A

TERMS OF REFERENCE FORM

1. Country/Project Name/Project Number
2. Prepared by
3. Date prepared
4. Data collection activity point person
5. Project funding cycle
6. Time-frame
7. Background of the project
8. Background of the data collection activity
9. Purpose of the activity
10. Key stakeholders
11. Persons responsible for data collection activity
12. Duties of responsible persons
13. Qualifications of responsible persons
14. Information required (key questions or indicators
15. Potential data sources
16. Potential data collectors and supervisors
17. Data analysis requirements
18. Reporting requirements

Twelve Guidelines for Drafting Questionnaires

1. **Avoid loaded or emotionally charged words** that are likely to prejudice the response (e.g., "Do you agree with the fanatical opinion expressed by the men's group on family planning?")

2. **Avoid superficial, pat questions** that encourage stereotypical, uniform responses (e.g., "Do you like the extension services?") More specific terms would be preferable: "Do you find that the extension services are useful?" "In what way?" "What do you find least useful?" "Why?"

3. **Avoid double-barrelled questions**, as respondents may not know which part to respond to (e.g., "Do you attend meetings of the cooperative and take loans from it?") This could be rephrased as two questions or converted to a multiple choice format where respondents select as many options as apply to them.

4. **Avoid questions that presume knowledge, experiences, or past practices** that respondents may not have (e.g., "Are you continuing to use pesticides?") It might be better to specify a representative list of pesticides and, depending on the point of the question, ask respondents to indicate which, if any, of those products they are no longer using as a result of the project.

5. **Avoid esoteric or technical words** as respondents may not have clear or similar understandings of their meanings (e.g., "Are you using contact pesticides or systemic ones?" "What should you do when your child has an acute upper respiratory information?" "How did the training impact on your contribution margin?"

6. **Avoid negatively worded questions** as they tend to be confusing as to the appropriate responses (e.g., "Are you not now leaving your water storage containers uncovered?")

7. **Avoid characterizing the issue in such a way as to prejudice the response** (e.g., "In view of the government's stand on . . . " "Do you agree with the project's system of setting up water committees?" "Which do you prefer, the improved cooperative system, or the old system?")

8. **Avoid sweeping questions** as they are uninformative (e.g., "Are you in favor of modern farming practices?"). A more explicit question might be, "Do you practice line sowing?" "Are the advantages of the new varieties of wheat? What are they? Are there disadvantages? What are they?"

9. **Avoid questions that are ambiguous** as to the desired response as it may be impossible to compare results (e.g., "When did you first become interested in planning your family?" Potential answers to this question include, "When I got married," "In 1989," "When I first heard about it," "When I went to a Mothers Club meeting." In would be better to be more explicit about the type of information desired: "In what year (or because of what event or events) did you first become interest in family planning methods?"

10. **Avoid unnecessarily complex questions** (e.g., "Would you or another family member be interested in attending a meeting of potential entrepreneurs to learn about bookkeeping methods and how to gain access to credit through a cooperative society?") It would be better to rephrase this question into several parts: "Are you interested in learning bookkeeping. Would you be willing to attend a meeting to learning about cooperatives"

11. **Avoid questions that require guessing** when respondents may have insufficient evidence to make an informed judgment. This can be avoided by offering choices like "Not sure," or "Don't know." Also, avoid questions that demand an unrealistic level of memory and detail (e.g., "How much money did you spend on agricultural inputs last year?") It would be better to as more specific questions about events in the more recent past. For example, you could ask, "How much pesticide did you buy in the last three months?"

12. **Avoid questions that do not adequately define the extent of detail or the degree of thoroughness of the desired answer** as responses will vary in completeness and may be misleading if compared (e.g., "What are some of the things about the project that you like?"). It would be better to ask" "What single feature (or three features) of the project did you like *most* about the project?" and, perhaps, "What single feature about the project did you like the *least*?"

- Adapted from *How Are We Doing? A Framework for Evaluating Development Education Programs* by Roland Case. Published by InterAction, 1987.

GUIDE FOR DEVELOPING A RATING SCALE TO OBSERVE PHOTOGRAPHS

A. Post pictures, number them, and explain the task: To determine which of the standpipes in the pictures are clean.

B. Explain that to be able to do the task the group needs to generate a list of criteria to help determine which of the standpipes in the pictures are clean.

C. Post newsprint and ask the group to begin stating criteria. List criteria. When done, ask if everyone is satisfied or if something needs to be deleted. Make modifications as necessary.

D. Explain that these criteria are the criteria the group will use to select the clean standpipes. A rating scale will be used to rate the standpipes' cleanliness. A scale of 1-5 will be used where "1" means the criterion was not met at all and "5" means it was completely met.

E. Ask everyone to use a piece of paper and list the number of the pictures in the left hand column. They should put the rating for each picture in the right hand column. Give an example.

F. Collect everyone's rating scales and ask someone to help tally the results. Add the total ratings for each picture and divide by the number of people for the average rating per standpipe.

G. Post the picture number, the individual scores and the average score for each picture.

H. Ask the group for observations in the variation of scores, focusing on where there is too much variation and ask the group to reach an agreement on the score.

I. Select clean standpipes:

1. Select standpipes that receive an average score of "5".
2. Focus scoring on "4" to get a consensus or majority decision as to whether these standpipes should be considered "clean".
3. Focus scoring on "3" to get a consensus or majority decision as to whether these standpipes should be considered "clean".

J. Record the number of clean standpipes.

Recommended Format for Written Report for Data Collection Activity

Cover. The cover is the front page. It should include the following:

- Title of the project, including the project number.
- Country and area (region, province, district, department) of the project.
- Names and titles of those responsible for the data collection activity, including who was the evaluation team leader.
- Dates the data collection activity took place.
- Date the report is submitted.

Executive Summary. The executive summary is a brief summary of the data collection activity, including the results. The idea is to communicate the highlights of the data collection report to the reader in a couple pages so he does not have to read the entire report. It should not be longer than two pages and should contain:

- Background of the project
- Description of the data collection activity and its purpose
- Findings, conclusions, and recommendations
- If there is room, lessons learned

Database Abstract Form. This is for evaluations only. An example appears in Chapter Five, Appendix 4 of CARE's *Program Manual*.

Table of Contents. The table of contents should list the sections, sub-sections, appendices, and their page numbers. The table of contents helps the reader locate specific parts of the report. (Don't forget to number the pages.)

Background of the Project. This section briefly describes the project It consists of the following parts:

- *How the project started.* This part should contain what the project is; who is benefiting; how the project came about; where the idea of the project came from.

It is important to know your audience. If the audience is a donor with little understanding of the project, you should describe in detail how the project started. On the other hand, if your audience is staff of the CARE country office who know the project well, this part can be shortened considerably.

- *Current project description,* including final and intermediate goals or key questions and their indicators. (This section would not be included in a report for a situation analysis or needs assessment for a project that has not yet been designed.)

- *Activities and their inputs and outputs.* In reports that require a statement of final and intermediate goals, the major activities and their inputs and outputs should be also listed.

- *Constraints faced during implementation of the project.* This part, which is especially appropriate for evaluation reports, helps the reader understand the obstacles the project had to deal with.

- *Project participants.* In many data collection activity reports, characteristics of the project participants should be described. Common characteristics are age, sex, socioeconomic status (income levels), education, profession, and skills.

Description of Data Collection or Evaluation Activity. This is an overview of the data collection activity. The credibility of the activity depends greatly on how it was designed and data were collected and analyzed. The description should contain a discussion of the following:

- *Purpose and objectives.* In CARE projects, these are listed in the Terms of Reference.
- *Key stakeholders.*
- Planning. Explain who participated in the planning of the data collection.
- *Design.* Describe how the activity was designed and who participated. This includes informational needs, indicators, data, data sources, and data collection techniques. This is a good place to address validity of the data collection design.
- *Instruments.* How the instruments were made and tested should be explained as well as their validity. Copies of the instruments should be attached to the report.
- *Data collectors and supervisors.* List the data collectors and supervisors. If enumerators or other types of field level data collectors were used, explain how they were selected and trained.
- *Data collection.* Describe overall methodology used to collect data as well as any constraints. Describe how data collectors were supervised and any efforts to validate data. Also include constraints that were faced, such as poor weather, civil unrest, and lack of cooperation from key stakeholders.
- *Data analysis.* Describe how data were analyzed and interpreted. Describe how quality checks were done, how data were interpreted, and who took part in interpreting them.

Findings and Discussion. The bulk of this section contains the results of data analysis and a discussion of those results. An easy way to write this section:

- List each key question OR goal, output, or activity and corresponding graphs, tables, or matrices
- Discuss the results in relation to the key question OR goal, output, or activity.

Evaluation reports should include a discussion of program principles, potential for sustainable impact on peoples lives, unexpected results, attribution, and costs.

Questions to answer about attribution include:

- Are there alternative explanations for what might have caused the results attributed to the project?
- How do the results compare with what might be expected to happen if there was no project? Evaluators should be ready to answer arguments against attribution of project results that might be raised.

Conclusions. The conclusions, in most cases, come directly from interpretation of the data. Major agreements and decisions about what the data mean that were made during the interpretation are described in this section.

Recommendations. Recommendations can be included in reports for any data collection activity. However, they most commonly appear in evaluation reports. They are specific actions that should be taken to improve the project and are based on the findings and conclusions:

FINDINGS + CONCLUSIONS = RECOMMENDATIONS

A project manager once said the first thing he and his staff do is turn to the recommendations and discuss them; the rest of the evaluation report is largely ignored. It is very common for only the recommendations to be read. They should, therefore, be written very carefully. Recommendations should be *clear and to the point, possible to implement, and relevant to the project.*

Lessons Learned. Include both lessons learned from the data collection activity, and those learned about the project and programming in general.

No matter what type of data collection activity took place, it is a good idea to document the important lessons learned. Note experiences, both good and bad, that serve as lessons to either try to avoid or to repeat. Learning from data collection activities is a good way to improve CARE capabilities to carry out such activities.

What lessons were learned about the project, its goals, strategy, information system, management, relationship with counterparts and project participants, staff capability and so forth? What lessons were learned about programming that are applicable to other CARE projects or even the development field?

GLOSSARY:

DEFINITIONS OF WORDS USED IN THIS MANUAL

Glossary: DEFINITIONS OF WORDS USED IN THIS MANUAL

Activity - Any action taken in the project to accomplish goals.

Association - The relationship between certain traits or characteristics being investigated. Association is used in descriptive statistics.

Baseline survey - Usually a questionnaire survey done before the project begins to establish pre-project conditions. Data collected during evaluations are compared to baseline conditions to determine whether any changes in the original conditions took place.

Basic data - Results of an activity or sets of activities such as "number of trees planted," "number of children immunized," and "number of loans disbursed." CARE uses basic data about project activities worldwide to understand the scope of its work.

Bias - Prejudice or partiality that results in a distortion of the real situation, which causes data to be unreliable. The real situation or truth is a relative term. It means if the same data are collected 10 different times, they're reported the same each time.

Close-ended question - Questions to be answered by marking predetermined set of options like rating or ranking scales, multiple choice, and yes/no question formats.

Closure stage - The sixth stage in a project's life where project activities and funding end. If the project is refunded or replicated in other places it continues in the execution stage.

Cluster sampling - A method of sampling that depends on a random sample of "cluster" units that many members belong to such as villages, neighborhoods, and records. Members of the "cluster" must have the same characteristics as the population it represents.

Coding - Method of organizing and categorizing data.

Completion check - A way to check quality of data by reviewing instruments to find out how many are completed. For example, check questionnaires to make sure questions are answered or observation guides to ensure observations are made and described.

Conceptualization stage - The first stage of a project's life which consists of identifying the problem and its major causes, describing the strategy, evaluation approach, resource requirements, rough budget, and project operations. The document for this stage is a concept paper.

Confidence level - The amount of certainty we have about how representative our sample is. We state the amount of confidence in our sample as a percentage. A 95 percent confidence level means that for every 100 times a sample is drawn, it truly represents the population 95 times.

Conversational interview - An informal and unstructured interview that takes place during the course of a conversation. During the conversation the interviewer casually asks questions to the respondent. Questions are not read from an interview guide or questionnaire and responses are not recorded in the respondent's presence

Correlation coefficient - A number derived from statistics to show a special type of association called correlation. Correlation means two characteristics or traits are associated and the association has a direction. Direction can be positive or negative. A descriptive index applied to two sets of numbers (x,y), the value of which serves to specify the overall dependence exhibited by the data between the variables x and y. The correlation can be positive (the more x characteristic increases, the more y increases). There can also be a negative correlation (the more x characteristic increase, the less is x).

Criteria - Standards used to make judgments about goals, activities, and key questions. Criteria help focus data collection by telling us what data to collect. CARE uses two types of criteria: indicators and targets.

Cross-item check - A method to verify quality of data. Check reliability of responses by comparing different but related items from the same or different instruments. If a woman's age is recorded as 18 but the number of children she has is listed as five, there is probably a mistake. Either confirm the response or do not include it in the analysis because it is not reliable.

Cross-product ratio - Compares traits or characteristics of two things. Odds for something happening is stated as a ratio. Then two sets of ratios are cross multiplied to get a cross-product ratio.

Data - Facts, figures, feelings, and observations about the issues being explored. This manual considers data to be useful information only when they have been analyzed and interpreted.

Data collection techniques - Methods used to collect data from the data source. Examples of techniques are interviews, observation, and document reviews.

Data sources - The origin of information. Examples of data sources include people, records, documents, houses, soil, and water.

Decision-focused approach - A common way to focus a data collection activity. It is based on what specific decisions stakeholders must make about the project. Data are collected to help stakeholders make decisions.

Definition stage - The second stage of a project's life which builds on and further defines the work done during conceptualization. The document for this stage is the project proposal.

Descriptive statistics - Numerical facts or data that use only a few numbers instead of many. Relies on measuring averages, spreads, and normal distributions. Also relies on visual display of data like graphs charts, and tables.

Documents - Reports, records, reference books, proposals, and the like that serve as sources of data. Many data from these kinds of sources are secondary data.

Document review - A technique for collecting data from documents such as evaluations, records, proposals, reports, and reference books.

Error rate check - A method to confirm the quality of data. Error rate is the proportion of items on an instrument that are completed incorrectly.

Evaluation - A broad investigation of a project's design, implementation, and results. Evaluation determines weaknesses and strengths, progress, results, and lessons learned. It also makes judgments about sustainabilty and substantial impact on people's lives and makes recommendations for improving the project.

Execution stage - The fifth stage in the project's life, during which project activities are implemented. In this stage activities are also monitored and adjusted based on the management information system.

Experiential learning cycle - A process describing adult learning that has four steps: experience of a learning activity, processing the experience, generalizing the learning, and applying the learning to some situation.

Final evaluation - An evaluation carried out near the end of the funding cycle when activities are almost completed. Sometimes called "summative" evaluation.

Final goal - This is the aim of the project. The final goal is written to reflect improvements that are to take place in some aspect of the lives of a defined group of participants. The final goal is achieved by first achieving intermediate goals.

Focus group interview - A structured discussion with a group of 6 to 12 persons selected on a set of criteria that makes the group homogeneous. The group comes up with ideas, reactions, or recommendations to topics being discussed.

Goal-oriented approach - A common way to focus a data collection activity. Project progress is measured by achievement of project goals, indicators, and targets.

Group meeting interview - A data collection method that involves asking questions during a meeting of community members, counterparts, project staff, or others. This kind of interview can be formal or informal.

Implementation schedule - Sometimes called a work plan. A list of activities with target dates for when they are supposed to be carried out and the person responsible for making sure they are carried out.

Indicator - A measure or criterion used to ascertain or verify that a postulated change has occurred and thus whether a given final or intermediate goal has been achieved. When used for key questions, indicators serve as criteria to helpl determine objective answers to the questions.

Inferential statistics - Used to draw sound conclusions from data. Inferential statistics helps give confidence in the data by saying that chance or other factors did not account for the findings.

Instrument - Any specific tool or device used to gather data. Questionnaires, interview and observation guides, and water-testing kits are examples of instruments.

Intermediate goal - A statement of the intended changes in systemic or behavioral conditions that must be achieved in order to accomplish the final goal. Each intermediate goal is a necessary condition to achieve the final goal.

Interview - A method of collecting data that involves one person asking questions and another person answering them. There are several kinds of interviewing methods.

Interviewer bias - Distortion of information caused by interviewers' collecting or recording data incorrectly, as when they ask leading questions or ask questions differently each time. It also occurs when responses or observations are recorded incorrectly or differently each time.

Interviewer - The person who asks questions during an interview.

Key informant interview - A group or individual interview with respondents who have a special understanding about the topic you are exploring.

Key questions - Important questions that stakeholders want answers for. Questions can address the project's design, its process, products, and costs in relation to benefits.

Key question approach - A way to focus a data collection activity by using key questions to

guide data gathering.

Margin of error - The degree to which the sample can be expected to vary from the population, based on statistical calculation. Level of confidence says in the long run what the margin of error is. The level of confidence tells us what the size of the margin of error is. The larger the margin of error, the more likely it is that the information is not valid.

Mean - Average. The sum of a group of measurements divided by the total number of measurements. The average, or mean, of 6+13+11 is 10.

Measurement - A method of data collection that determines quantities like "how much" or "how many." For example, mathematical formulas to calculate crop and production yields, anthropometric measures to establish nutritional status, and topographical surveys for road construction.

Median - The mid-point value of a group of numbers ordered from smallest to largest.

Mid-term evaluation - An evaluation conducted about twelve to eighteen months after project start-up and repeated approximately every two years if the project has a long cycle.

Mode - The value (number) occurring most frequently in a set of data. To get the mode, order the numbers from smallest to largest and count how many times each number occurs. The one occurring most often is the mode.

Monitoring - A systematic and on-going collection and analysis of data which provides valuable information for managing the project. Monitoring tracks activities and outputs.

Needs assessment - A specific data collection activity that focuses on identifying unmet needs of the project participants. Needs are often categorized according felt, relative, and normative. Needs assessment is used to help identify the problems and causes the project will address.

Normal curves - A line used to demonstrate visually how numbers are distributed. This is sometimes called a bell-shaped curve. The mean, median, and mode are all at the center of the curve and standard deviation is numbers to the right and left of the center.

Observation - A systematic method of data collection that involves watching or observing people's behavior or other phenomenon and recording the observations.

Observer - The person watching or observing behaviors or other phenomena.

Open-ended question - A question that allows for a freely formulated answer rather than one made by a choice from among predetermined answers.

Operational planning stage - The third stage in a project's life that builds on the project definition stage by spelling out project operations. This includes carrying out a baseline survey, collecting results, and developing an implementation plan and schedule, the financial plan, and the management information system.

Output - The result of an activity or set of activities. Outputs contribute to achieving the project's intermediate goals. Examples of outputs are "500 women trained and able to mix ORT solution" and "300,000 trees planted and surviving."

Participant observation - An observation technique where the observer lives with and takes part in the daily activities of the subjects.

Percentile - A measure that tells how many numbers fall above and below a certain number. The median is called the 50th percentile. The lowest number is the 0 percentile, and highest is the 100 percentile.

PIRs - Project implementation reports. These are CARE's main mechanism for monitoring and reporting progress towards achieving project activities, outputs, and intermediate goals.

Population - The total set of items, persons, etc. from which a sample is taken as sources of data.

Post-project evaluation - An evaluation done at least one year after the project activities end. Post-project evaluations are important for finding out about the sustainability of improvements in people's lives.

Post-project stage - The seventh stage (and final) in a project's life, when project inputs and management have stopped. After closure of the project, the long-term impact and sustainability of the project is assessed when possible. Further conclusions about the project and lessons learned are drawn.

Precision - How accurately the sample represents the population. Two things determine precision: confidence level and margin of error.

Primary data - Data collected for the specific needs of the project.

Probability sampling - A method for selecting samples where all the members of a source have an equal chance or "probability" of being chosen. There is the likelihood the sample is truly representative.

Protocol - Set of instructions to the data collector about how to use the instrument and what should be done in certain situations.

Purposive sampling - A method of sampling that chooses the sample based on some defined criteria. Because purposive sampling is not based on mathematical probability we cannot be sure the sample is truly representative. See also Probability Sampling and Random Sampling.

Qualitative data - Data in verbal (as opposed to numerical) form, either quotes or descriptions. Qualitative data give particular insight into how the persons providing the information view the world.

Quantitative data - Data in a form that can be counted (numerical) and that helps categorize events into general descriptions.

Question format - The way responses to questions should be asked and recorded. Common question formats are yes/no, multiple choice, rating, ranking, or open-ended.

Questionnaire survey - A data collection technique that uses a questionnaire. Questionnaire is an instrument that has a set of questions organized in a systematic way as well as a set of instructions to the interviewer about how to conduct the interview. Questionnaire surveys for large populations usually use samples.

Random sampling - A method of selecting members of a population (or other items) in such a way that everyone (or everything) has an equal chance of being selected.

Rapid appraisals - Quick and inexpensive data collection activities that provide timely and relatively accurate information to project staff.

Regression analysis - A method of statistical analysis used to determine the value of the independent variable when we know the value of the dependent one, or vice versa. Regression analyses are frequently used to project values into the future. Or, in other words, it is used to predict if something we don't know about is likely to happen if something we do know about does happen.

Reliability - The degree to which data collected are consistent; "the extent to which something can be relied on and trusted to be of consistent quality when used repeatedly." If 10 data collectors observe the same farming practices and they report the same information, we can see the data are reliable.

Respondent(s) - The person or persons answering questions during an interview.

Respondent bias - Distortion that occurs when respondents answer questions falsely either because they don't want to tell the truth for some reason or because they do not understand the question.

Response rate - The proportion of members of a sample who answer a request for information. Response rate is usually stated as the number of respondents divided by the number of persons in the sample.

Sample - A part of a whole selected to represent that whole. All the members of a given data source are considered the whole.

Sample size - The number of source members in the sample. The sample size depends largely on how precise you want to be, probability of finding what you're looking for, and amount of data and how it will be analyzed.

Sampling - Method of selecting a part of all the members of the source so that the portion is representative of the whole; "the process and techniques of studying part of something to gain information about the whole and the particular methods of analyzing the information collected."

Sampling error - A mistake made when the sample is selected in such a way that results are different than if data had been collected from all members of the population; "the uncertainty attributable to sampling because estimates are being made from a sample rather than the universe" or whole.

Sampling frame - The list of members from which the sample is selected. The sampling frame might be a list of households, families, participants, or records.

Secondary data - Data collected by someone else, usually for some other purpose than for the information needs of the data collection activity.

Self-sampling bias - Distortion of data that occurs when members of the sample who do not take part in the data collection activity are different in some important quality from those who take part in the interview. This can result in an unrepresentative sample.

Simple random sampling - A sampling method based on mathematic probability where each member of the sampling frame has an equal chance of being selected.

Situation analysis - A broad data collection activity the purpose of which is to provide information about the project setting. It helps the project planner learn about the project participants, their community, and problems they have.

Standard deviation - The square root of the arithmetic average of the squares of the deviations from the mean in a frequency distribution.

Stakeholders - Persons who have an interest in the data collection activity because they will be affected by the results. Stakeholders include project and country office staff, donors, project participants, and counterparts.

Start-up stage - The fourth stage in the project life. It represents the period of time between planning to become operational and actually becoming operational. Systems are put in place, staff are hired and trained, and materials and equipment are ordered and purchased.

Stratified sampling - A three-step random sampling method that involves organizing members into sub-groups or strata, determining the sampling frame for each sub-group, and selecting a sample from each sub-group.

Subject - The person being watched or observed during observation.

Summary grid - A format used to summarize small amounts of quantitative data by hand. All coded responses are listed along the side of the page and each instrument number along the top. Data are organized by instrument and response. See also Tally Sheet.

Summary matrix - A format used to summarize small amounts of qualitative data by hand. Quotes are organized in the matrix by person and topic.

Systematic sampling - A sampling method where we randomly choose the first member in the sampling frame, then select every nth member to be part of the sample, e.g., the 7th, 14th, 21st, etc.

Tally sheet - A sheet of paper prepared to show all possible responses to a question and used to summarize and then analyze information.

Target - A quantity measure; the specified objective of an activity or set of activities that describe how much should be accomplished. Examples of targets: "345 women trained," "4,000 trees planted," "2 sub-offices established," or "64 jeeps purchased."

Technical study - A data collection technique that uses scientific methods from biology, chemistry, or other scientific fields. Technical studies do not use social science methodologies.

Terms of reference - (TOR) A document prepared for the data collection activity that spells out the specifics. See *Appendix A.*

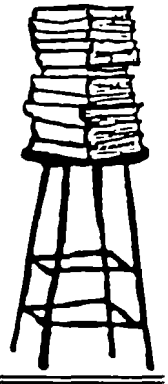
Validity - There are three kinds of validity. Valid design means the data collection design will get the desired information. Valid technique means the method to gather data will get the necessary data. And a valid instrument means the instrument measures what it is supposed to measure.

Variance - The degree that numbers in a set of data vary from the mean value. Calculate variance by subtracting each number from the mean, squaring them, adding the squares, and dividing by total number of numbers.

Bibliography:

WHERE TO FIND OUT MORE

ABOUT TOPICS IN THIS MANUAL



Bibliography: WHERE TO FIND OUT MORE ABOUT TOPICS IN THIS MANUAL

Many books go into detail about topics this manual covers. Instead of listing a large number of references, this manual lists a few selected ones based on two criteria:

1. They are easy to order and receive. In several cases, you can order a publication series of 7 to 9 books.

2. They have been used by CARE staff; many were used to write this manual.

Also, each book itself includes an extensive list of references you can further explore if you want more information about a certain topic. They are organized below by where you can order them.

CARE's Program Manual. This manual covers all aspects of programming in CARE. Of particular interest are Chapters 3 and 5. Chapter 3, The Multi-Year Planning System, defines the project stages as well as final and intermediate goals, outputs, activities, and other project design terminology. Chapter 5 covers monitoring and evaluation. This manual is based on many of the guidelines and principles outlined in the evaluation and monitoring chapter of the Program Manual.

CARE's Sectoral Strategy Papers. These sectoral strategy papers provide a broad overview of CARE's approaches in four main areas of programming: Agriculture and Natural Resources, Small Economic Activities Development, Primary Health Care, and Population and Family Planning.

> These publications can be ordered from CARE, TAG Unit, 660 First Avenue New York, NY 10016

Program Evaluation Kit. A set of books to help plan and design an evaluation and gather, analyze, and interpret data. While the focues of the kit is on evaluation, many of the steps and procedures it covers can be used for other data collection activities. All were published by Sage Publications. There are nine books in the kit:

Volume 1: Joan L. Herman, Lynn Lyons Morris, and Carol Taylor Fitz-Gibbon. *Evaluators Handbook*. 1987.

> Volume 1 introduces the rest of the kit. It looks at the theory and role of evaluation in programming and examines formative and summative evaluation approaches. This volume contains a framework and useful tools for carrying out data collection activities. This book is helpful in planning and designing the data collection activity.

Volume 2: Brian M. Stecher and W. Alan Davis. *How to Focus an Evaluation*. 1987.

Volume 2 will help you plan an evaluation or other data collection activity. It discusses the importance of focusing data collection and provides several common focussing approaches. These are goal-oriented, experimental, decision-focused, user-oriented, and responsive. Of special interest are goal-oriented and decision-focused because these are promoted in this manual. Also, this volume gives a handy planning framework.

Volume 3: Carol Taylor Fitz-Gibbon and Lynn Lyons Morris. *How to Design a Program Evaluation*. 1987.

Volume 3 focuses on design of quantitative research or evaluation research. It looks at classical experimental and control groups/pre-post test designs. This volume is probably less useful to CARE staff in most situations. Nevertheless, if a project is planning to use control groups or conducting some sort of experiment to test strategy effectiveness, this book is helpful.

Volume 4: Michael Quinn Patton. *How to Use Qualitative Methods in Evaluation*. 1987.

Volume 4 goes into all the important issues around collecting and analyzing qualitative data. This volume also explores techniques such as observation and interviewing. Overall, it is a useful book that contains good tips and tools. It doesn't do a very good job of showing us how to analyze qualitative data, which can be real hard to do.

Volume 5: Jean A. King, Lynn Lyons Morris, and Carol Taylor Fitz-Gibbon. *How to Assess Program Implementation*. 1987.

Volume 5 examines how a program is actually operating. The authors consider this essential to further evaluation efforts. This volume explores tools to assess implementation like observations, records, and self-reports. Volume 5 contains some interesting tools and ideas, but is not the highlight in the evaluation kit.

Volume 6: Marlene E. Henerson, Lynn Lyons Morris, and Carol Taylor Fitz-Gibbon. *How to Measure Attitudes*. 1987.

Volume 6 reviews methods and instruments to measure attitudes. The more important feature of this book is the extensive list of sources for ordering attitude instruments. It also has good instructions for developing questionnaires, interview guides, rating scales, and observation schedules to measure attitudes. These are also useful for developing instruments to measure other sorts of things. Attitude is hard to measure, yet many CARE-managed projects try to do it, and this book can be a real help.

Volume 7: Lynn Lyons Morris, Carol Taylor Fitz-Gibbon, and Elaine Lindheim. *How to Measure Performance and Use Tests*. 1987.

> Volume 7 is helpful if you plan to use tests. The emphasis is on performance testing in relation to project objectives. If you plan to test farmers, mothers, or business people on various skills or knowledge they should have gained as a result of the project, this book is worth examining.

Volume 8: Carol Taylor Fitz-Gibbon and Lynn Lyons Morris. *How to Analyze Data*. 1987.

> Volume 8 looks at descriptive and inferential statistics. It examines mean scores, standard deviation and variance, and graphing techniques like box and whisker plots. This book also looks at statistical significance testing between mean group scores as well as correlation coefficients and regression equations. The best thing about this volume is the work-sheets it contains. These allow the reader to work through some of the issues and get practice. The authors did a good job of taking the topic of statistics and putting it into practical layman's terms.

Volume 9: Lynn Lyons Morris, Carol Taylor Fitz-Gibbon, and Marie E. Freeman. *How to Communicate Evaluation Findings*. 1987.

> Volume 9 is all about sharing the findings and results. The focus is on sharing evaluation findings, but the same ideas and methods can be used for most data collection activities. Volume 9 presents some useful guidelines for writing reports, oral reporting, and using tables and graphs. While some of the explanations are short, overall it is a good reference to have in your library.

You can order the entire Program Evaluation Kit or any one volume from Sage at these addresses:

Sage Publications Inc.
211 West Hillcrest Drive
Newbury Park, CA 91320
U.S.A.

Sage Publications Inc.
28 Banner Street
London EC1Y 8QE
England

Sage Publications Inc.
M-32 Market Street
Greater Kailash I
New Delhi 110 048

Other recommended books from Sage Publications are listed below.

Henry M. Levin. *Cost Effectiveness: A Primer.* 1983. This is Volume 4 of another Sage Publications series, "New Perspectives in Evaluation."

> Although Levin's analysis is applied to the field of education, the conceptual and operation principles are easily applicable to international development projects. It is written at a level appropriate to the evaluation professional, but will be useful to others, particularly because it clearly articulates the differences among cost-effectiveness, cost-benefit, cost-utility, and cost-feasibility. Those interested in the subject might also want to look at *The Cost-Effectiveness Analysis Field Manual* by Robert R. Nathan Associates, which is described at the end of this Bibliography.

Michael Quinn Patton. *Utilization-Focused Evaluation.* 1978.

> This book looks at the theory of evaluation, evaluation questions, clarifying goals, deciding what to evaluate, implementation, and some evaluation frameworks. The emphasis is on using evaluation results and how this can best be achieved. The basic premise is evaluation results don't do anyone any good if they aren't used to make decisions. The author discusses several important issues, but overall the book is pretty theoretical. It is good but not great.

Michael Quinn Patton. *Qualitative Evaluation Methods.* 1978.

> Here Patton does a good job of laying out the issues around collecting and analyzing qualitative data and defining terms. However, it is less successful in explaining steps and giving examples of how to use tools and analyze qualitative data. Nevertheless, if you can wade through some of the theory and academic terminology, this book contains some helpful information.

Matthew B. Miles and A. Michael Huberman. *Qualitative Data Analysis.* 1984.

> This is an exciting idea for a book because so little is available on methods to analyze qualitative data. In practice, it is somewhat disappointing. The authors evaluated an education project and in the process developed some techniques to organize, categorize, and analyze qualitative data. This is what the book is about. It comes across a little too theoretical. If you have experience with qualitative data analysis, you may find this book very useful but if you're new to the area of qualitative data, it might be best to pick another book that's a little more basic. The problem is that not much is available.

Peter H. Rossi and Howard E. Freeman. *Evaluation: A Systematic Approach*. 1985.

> This is considered one of the classical books on evaluation. It is probably better suited for a graduate level evaluation course than CARE data collection activities, but it does point out some important issues around evaluation planning and designing. Specifically it goes into methods for assessing impact and efficiencies of project strategies.

All these books can be ordered from Sage Publications from the addresses listed above.

A.I.D. Program Design and Evaluation Methodology Reports. A.I.D. has contracted various authors to write reports about evaluation and data collection. These are known as the Program Design and Evaluation Methodology Reports. The reports that are likely to be most valuable for CARE-managed data collection activities are listed below. All are published by A.I.D.'s Center for Development Information and Evaluation.

Molly Hageboeck. *Manager's Guide to Data Collection*. 1979.

> This report examines the roles and responsibilities of managers of data collection activities. It looks at management tools, scopes of work, and data collection teams. This report also reviews design considerations and approaches to collecting data. This includes sampling and data collection techniques like surveys, observation, and interviewing. The author did a good job of fitting important data collection issues into this concise report.

A.I.D. Evaluation Handbook. 1987.

> This handbook is geared towards A.I.D. monitoring and evaluation policy. It examines A.I.D.'s monitoring and evaluation systems, procedures, and roles and responsibilities. Although its intended audience is A.I.D. project managers, many of the issues apply to CARE-managed projects. These include forms of evaluation, data sources, planning, design, scopes of work, and follow-up. This is not the best book in the series, but it is worth taking a look at.

Maureen Norton and Sharon Pines Benoliel. *Guidelines for Data Collection, Monitoring, and Evaluation Plans for A.I.D.-Assisted Projects*. 1987.

> This is another document targeted for A.I.D. project managers. But like the other A.I.D. reports in this series, this one covers general data collection issues that CARE staff should find useful. Of particular interest is a discussion about how most projects collect too much data, which become difficult to analyze. Results aren't available to project managers when they need to make decisions. This report goes on to explain a

form of rapid appraisal called "Rapid, Low-Cost Studies" and some of the data collection methods used in these studies.

Krishna Kumar. *Rapid, Low-Cost Data Collection Methods for A.I.D.* 1987.

The author describes what rapid, low-cost studies are and then reviews several of the more common methods used to gather data in these kinds of studies. The methods include key informant interviews, focus group interviews, community interviews, observation, and informal surveys. He does a good job of laying out the advantages and disadvantages of each method and what is required to use each one. This is a very useful document to have as a reference.

Krishna Kumar. *Conducting Group Interviews in Developing Countries.* 1987.

Here Kumar discusses group interviewing methods. He looks at focus groups and community meetings, and biases associated with these kinds of methods. This report spells out the steps and procedures for conducting these kinds of group interviews. This is probably one of the best reports in the series.

Selecting Data Methods and Preparing Contractor Scopes of Work. 1985.

This report touches on different types of data collection approaches; sample surveys, document reviews, case studies, and case-control studies. The problem is that the report doesn't go into much detail about anyone method. It also outlines issues about preparing scopes of work and provides some guidelines. CARE staff is likely to find this section of the report more helpful.

Louise G. White. *An Approach to Evaluating the Impact of A.I.D. Projects.* 1986.

Impact evaluation is a complex undertaking. This report tries to do it in 50 pages. It leaves the reader asking more questions than it answers. It does, however, address some of the important issues in impact evaluations and is probably worth reviewing. But it is not one of the more useful reports in A.I.D.'s evaluation and monitoring series.

The A.I.D. Program Design and Evaluation Methodology Reports can be ordered from this address: **A.I.D. Document and Information Handling Facility, 7222 47th Street, Suite 100, Chevy Chase, MD 20815**

Below are a couple of books you may wish to order from the World Bank.

Dennis J. Casley and Krishna Kumar. *The Collection, Analysis, and Use of Monitoring and Evaluation Data*. 1988.

> This book is about monitoring and evaluation for agriculture projects. However, many of the data collection techniques and issues apply to other kinds of projects. Specifically, the authors define qualitative and quantitative data, look at qualitative interviewing techniques, examine surveys and sampling methods, and describe various data analysis approaches. If you have some understanding of statistics, the section on sampling and data analysis can be real helpful. If you don't, it may be a little too complex. Generally, this is a valuable book to have in your reference library.

Lawrence F. Salman. *Listen to the People.* 1987.

> The author lived and worked with project participants in projects in Ecuador and Bolivia. He practiced participant observation to collect data about how to improve the project's strategies. This book describes those experiences. It also points out that most project planning is done by planners who don't really understand the participants' world. The author considers this to be a major flaw and responsible for poorly designed projects. For those who intend to use participant observation in projects, this is a very good book.

Both of these books from the World Bank can be ordered from this address:
The World Bank, 1818 H Street,N.W., Washington, DC 20433

Below are three books published by InterAction:

Daniel Santo Pietro (ed.). *Evaluation Sourcebook*. American Council of Voluntary Agencies for Foreign Services. 1983.

> The Evaluation Sourcebook defines evaluation and describes a set of steps to planning evaluations. It also defines different types of evaluation approaches which include goal-based, decision-oriented, goal-free, naturalistic, and expert judgment. One of the most useful parts of the book is the section on data collection tools. Sixteen tools are described. Some examples are community meetings, diaries, interviewing, observation, mapping, photography, questionnaire, scales, and problem stories. Each CARE country office received a copy of this book. If you don't have one, you can order it from the address below.

Roland Case. *How Are We Doing?* InterAction. 1987.

> This is book applies to a variety of data collection activities. It defines evaluation and describes seven stages to an evaluation. It contains some very good examples of data collection instruments and how to make them. It also addresses most of the important issues in collecting and analyzing data. This book is highly recommended.

Roland Case and Walter Werner. *Assessing Development/Global Education Programs: A Planning Model.* InterAction/The American Forum. 1990.

> This brief booklet outlines an excellent flexible model that several groups have found useful when attempting to work through their evaluations. The model consists of six activities (with accompanying work-sheets) that provide a mechanism for planning and carrying out an efficient, manageable assessment of a program.

Order these books from: **InterAction, 200 Park Avenue South, New York, NY 10003.**

Marie-Therese Feuerstein. *Partners in Evaluation: Evaluating Development and Community Programmes With Participants.* Teaching Aids at Low Cost (TALC). 1986.

> The focus of this well-designed and illustrated book is on field-based data collection where field staff and participants are involved in collecting and analyzing data. The strength of this book is how it describes complex data issues in very simple terms. It covers planning, design, data collection, analysis, and reporting. Some very good ways to display data in graphs, charts, and tables are given. This is an excellent and useful book to have in your library.

You can order this book from: **TALC, Box 49, St. Albans, Herts, AL1 4AX, U.K.**

Kenneth E. Baily. *Methods of Social Science Research.* New York: Free Press. 1978.

> There are many books available on social science research methods. This book is one of the more popular. It goes into detail about surveys and sampling issues and instruments and compares and contrasts different data collection techniques. It is a good idea to have at least one good reference book on research methodology and this one is as good as any.

Robert R. Nathan Associates. *The Cost-Effectiveness Analysis Field Manual. New York: PACT. November 1986*

This manual, which is written in direct and easy-to-understand language, is directed to field managers and headquarters staff of PVOs operating small development projects. It uses examples and information drawn from developing country projects in agriculture, health, and economic and community development. It also contains seven useful chart forms, which could be helpful, especially to those new to the field, in monitoring costs and in calculating cost-effectiveness.